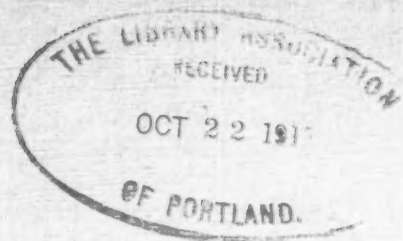


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THE ARCHITECT

+VOLUME XIV • NUMBER 4+
+ OCTOBER + 1917 +

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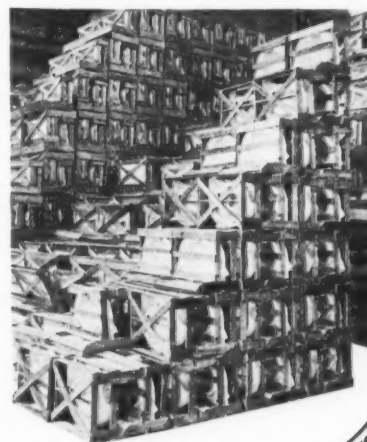
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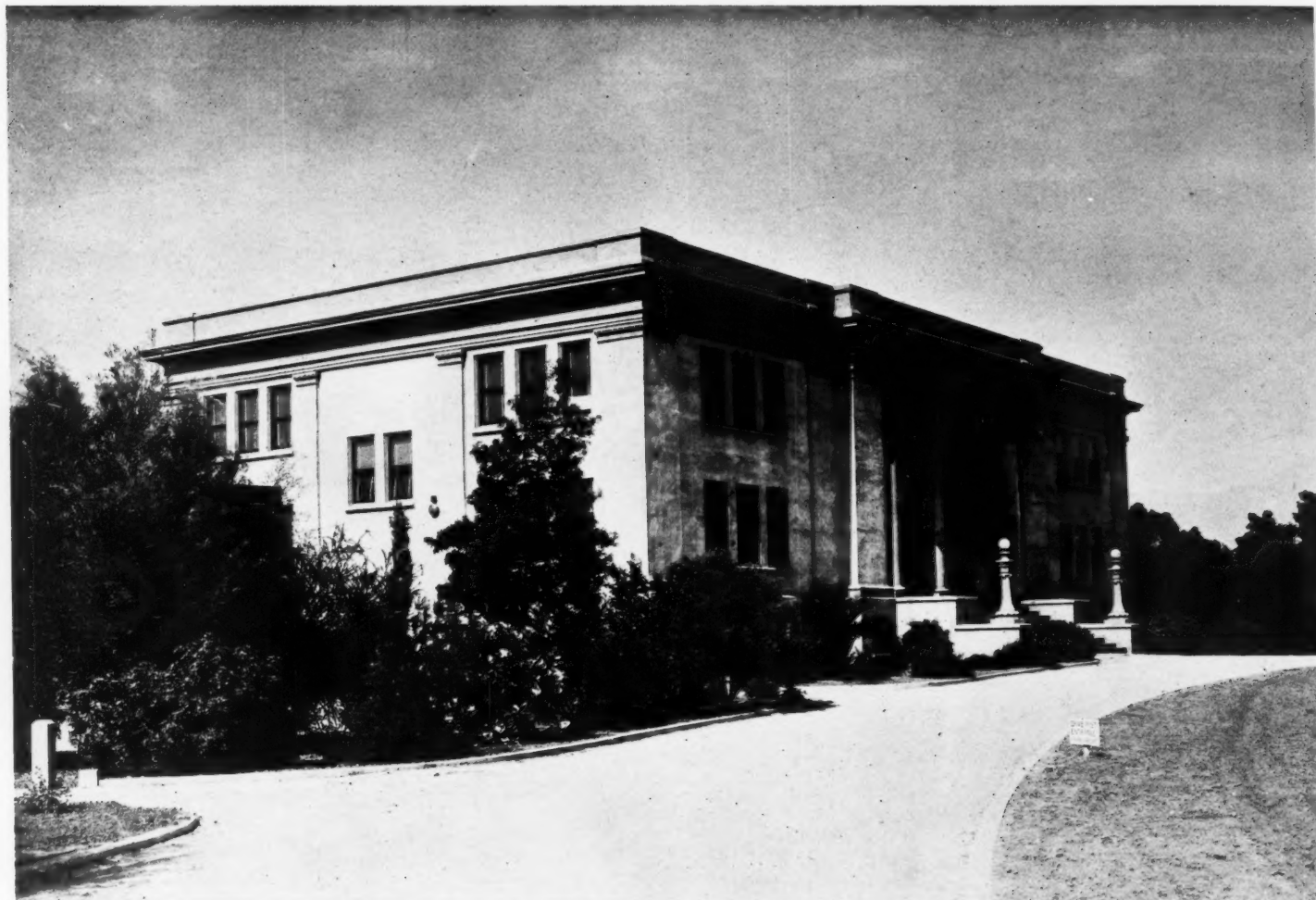
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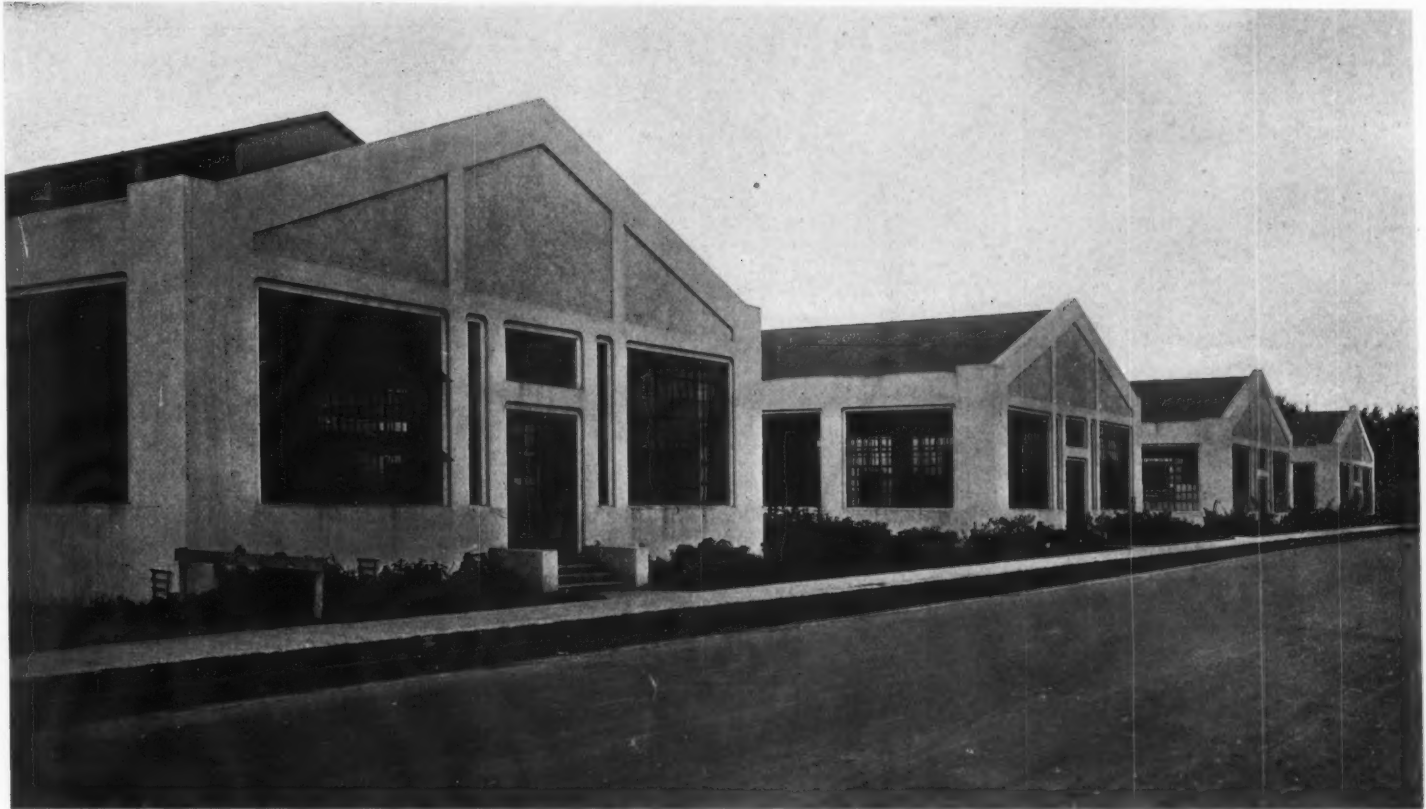
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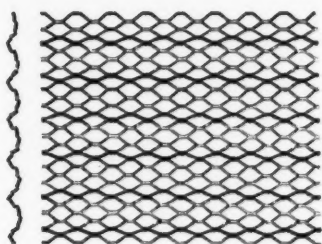
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THE ARCHITECT

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HARRIS ALLEN
EDITOR

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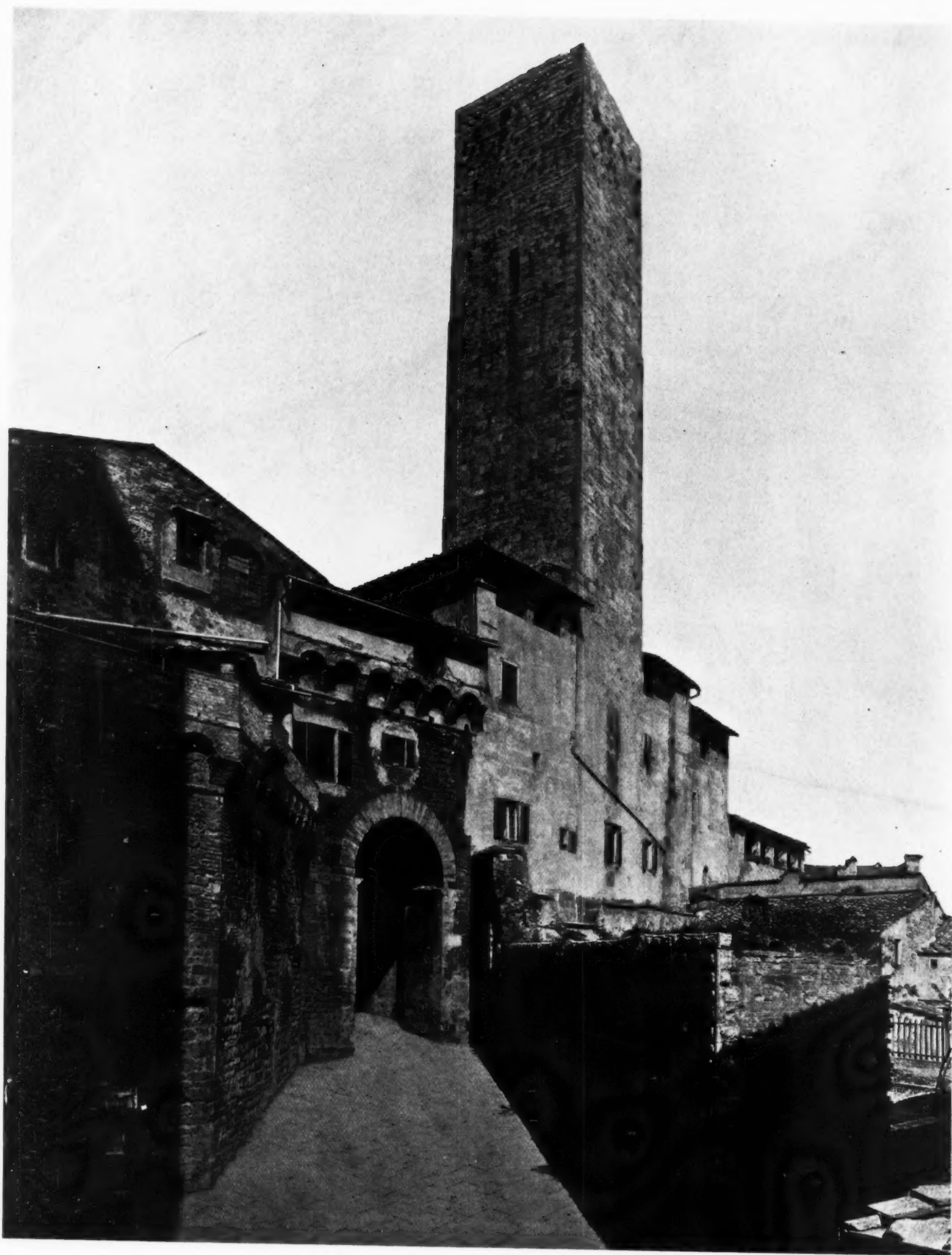
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The editor will be pleased to consider contributions of interest to the profession. When payment for same is desired, this fact should be stated.



ANCIENT GATEWAY IN NORTHERN ITALY

THE ARCHITECT

VOL. XIV.

SAN FRANCISCO, OCTOBER, 1917

NO. 4



STANFORD UNIVERSITY SCHOOL DISTRICT ELEMENTARY SCHOOL
JOHN J. DONOVAN, ARCHITECT

The Educational Function of School Architecture

By C. E. RUGH, Professor of Education University of California

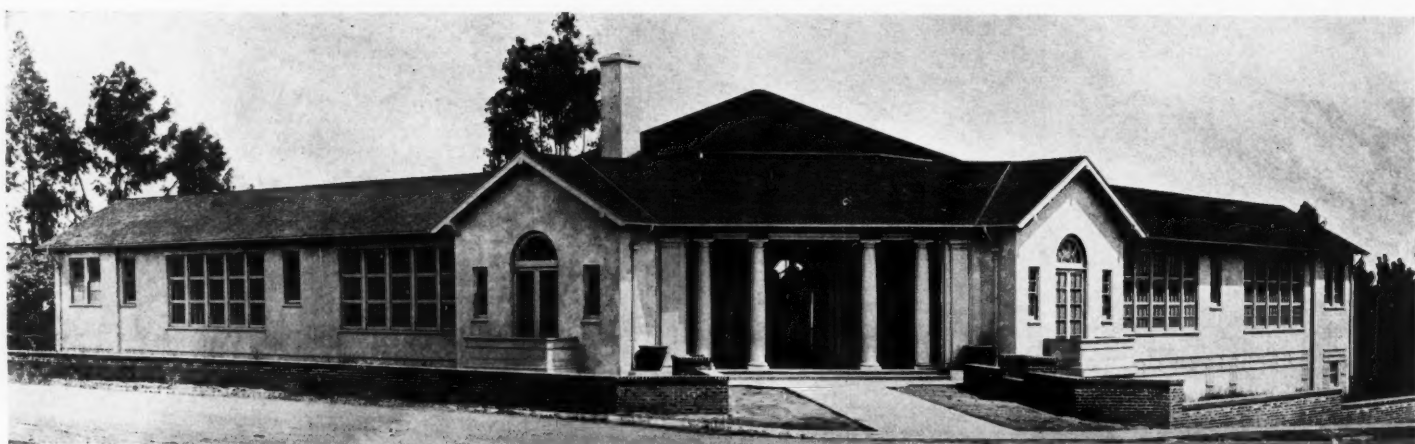
THE greatest resources of the community, of the State, of the nation, are the children. They are the greatest assets, but they may become the greatest liabilities. All the gain in health and wealth, in art and science, in morals and religion, if saved at all, must be preserved and conserved through the children. They may waste all these gains. Not only so; most of the diseases, vices and crimes are perpetuated through the children. If the ranks of evil-doers were not recruited from children, most diseases, vices and crimes would die out in one short generation.

The process by which society conserves its gains is education. The formal organization of education is the school. The material means of the school is the school plant, consisting of the grounds, buildings and material equipment.

School architecture is often thought of as being concerned only with the buildings, but no trained

architect so considers it. A real school architect is interested in the whole plant. He is interested in the grounds, the buildings, and the physical equipment, but this interest is subordinate and determined by the welfare of the children.

A school is the most general and most complex institution in the community. There are more lines of interest and influence centering in the school than in any other organization in the community. For this reason the purchase of a school site and erection and equipment of school buildings are of great importance and interest. The selfish persons and organizations of a community are moved to seek gratification of their greed or to seek special privileges. For these very same reasons the occasion for providing a community with adequate school facilities becomes an opportunity for educating the whole community in their rights and duties concerning education. This achievement can be accomplished, however, only by

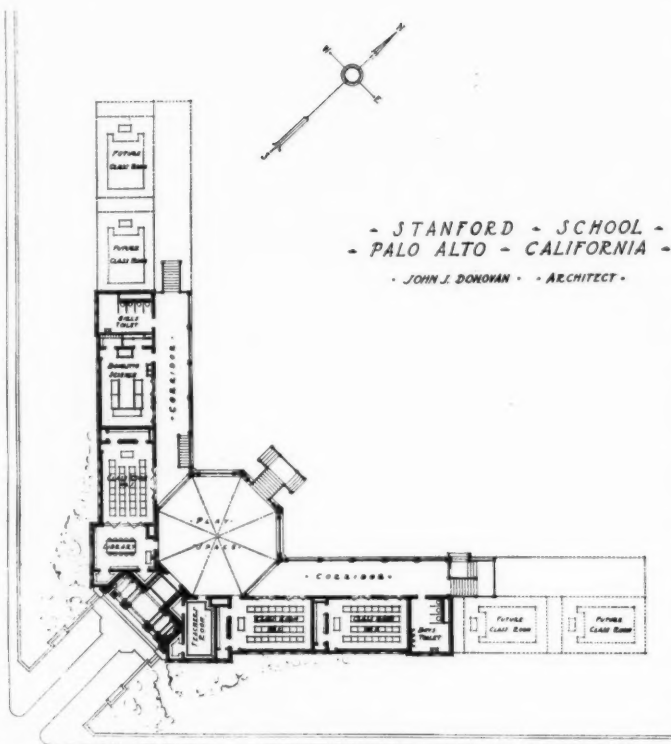


FRONT ELEVATION

wise educational and civic leadership.

A school plant is an expression of public opinion. It expresses the community's interest, faith and intelligence concerning education. It may aid real architects and good citizens in combatting the machinations of selfish interests to point out what the school plant is not.

A school building is not a monument or memorial to the architect, contractor, board of education or supervisors. These persons are public servants. It is bad taste, to say the least, for these servants to take their employers' money to put their own names or faces or busts on these public buildings. A school building ought not to be an exhibit of any private opinion or theory of any individual. It ought not to be made to conform to the opinions or de-



FLOOR PLAN

sires of a small fraction of the community unless the fraction stands for the public welfare as crystallized in law. And in these cases the minority can meet the majority by recourse to school and State authorities.

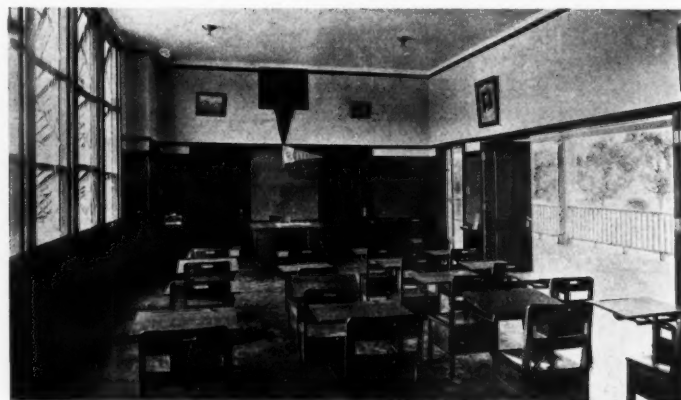
A school plant is not legitimately a means of a real estate boom. The buildings cannot be equally near very many of the children. The democratic principle of the greatest good to the greatest number ought to rule. In cities this principle requires the board of education to take account of the direction in which the city is being populated.

In the last analysis, the public school plant is made to serve all the interest of all the children of all the people. If the community so thinks of the school plant and seeks a wise and real school architect, it may pro-

(Continued on page 222)



COVERED PLAY SPACE



TYPICAL CLASS ROOM

STANFORD UNIVERSITY SCHOOL DISTRICT ELEMENTARY SCHOOL
JOHN J. DONOVAN, ARCHITECT

The Architect As a Collaborator in School Surveys

By JOHN J. DONOVAN, Oakland, Cal.

IN reading the "Building Situation and Medical Inspection," Report of the School Survey of the City and County of Denver, Colorado, by Prof. Lewis M. Terman, Ph. D., Leland Stanford Jr. University, the architect or educator familiar with the basic principles governing modern school house design and construction is impressed with the complete thoroughness of the investigation, the keen observatory powers of the author and his ability to record his findings. It seems hardly creditable that a worker outside of the architectural and mechanical engineering profession could possess such a fund of information so necessary in the practice of these two professions, and acquired only after an extended experience; yet the architect and the engineer will learn much in Dr. Terman's report on how not to build a school by following the numerous salient criticisms of the plan, arrangement, construction, lighting orientation, heating, ventilation, sanitation, and the many other component parts of the school building, all of which are carefully analyzed and criticised. And the value of the report lies in the constructive recommendations offered as replacements to the faults found in the work under observation.

The writer of this article heartily recommends that this report be given a prominent place in every architect's and school man's library as a reference for

school surveys and as an assistance in examining plans for new school building.

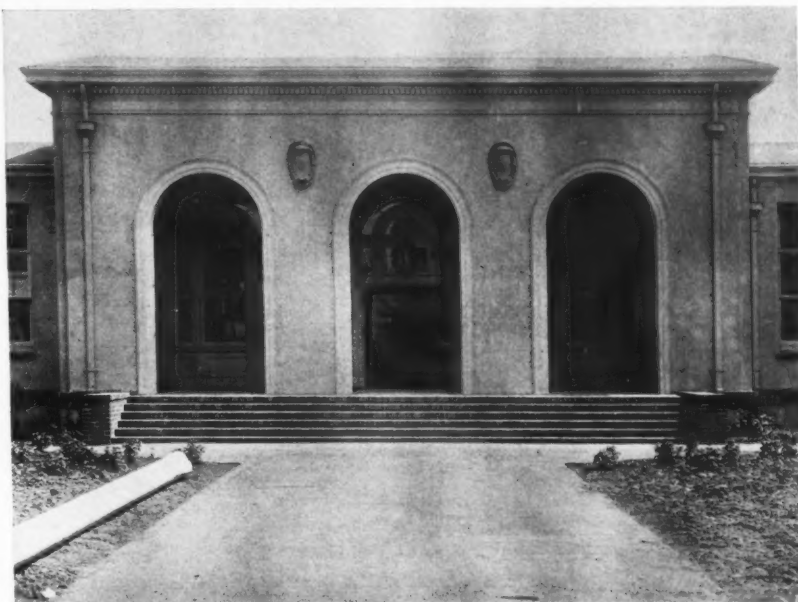
We might venture on the thin ice of suggestion, however, by observing that little or no comment was made regarding the merits of the architecture of the buildings. To the indifferent-minded layman this feature of a survey is of minor importance, and to others it is a very secondary consideration; but to those who

realize the great educational and economic value to the State, and the refining influence not only upon the students attending the school, but upon the community as well, of well-designed public buildings of good taste in composition and materials, this function of a school survey and of school building is complementary to the technical side of the problem.

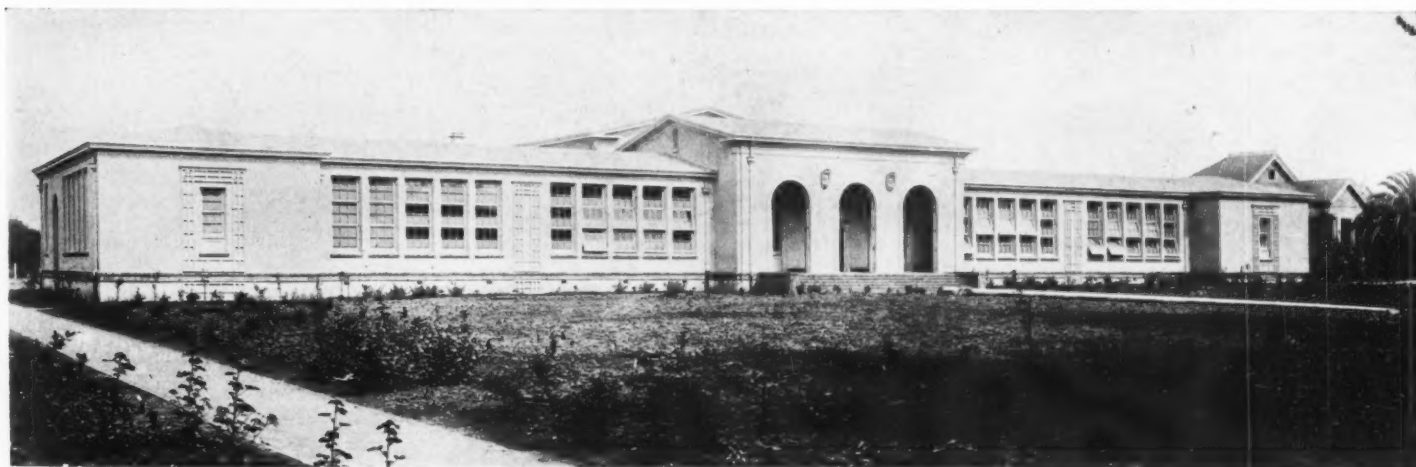
This may be debatable, but all controversy is closed by recalling the principle that no matter how beautiful such an institution may be, or

how great an æsthetic influence it may have, it is more or less a failure unless its plan and details fully meet the requirements of its purpose, namely, that of housing in order to teach and to learn under the most efficacious conditions.

Success in this field of architecture is dependent entirely upon a sincere desire that every technical problem of the whole be first solved before attempting the exterior architectural composition, although we all



MAIN ENTRANCE, MCKINLEY ELEMENTARY SCHOOL, SAN LEANDRO, CAL.
JOHN J. DONOVAN, ARCHITECT



FRONT ELEVATION, MCKINLEY ELEMENTARY SCHOOL, SAN LEANDRO, CAL.
JOHN J. DONOVAN, ARCHITECT



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JOHN J. DONOVAN, ARCHITECT

know how both lead and fit into each other. Ultimate success cannot be attained any other way nor by the absence of such a spirit.

Hence, the most exacting hard-boiled utilitarian will not deny the soundness of the premises taken to plead for better architecture in our schools and for a wider collaboration between the school man and the architect.

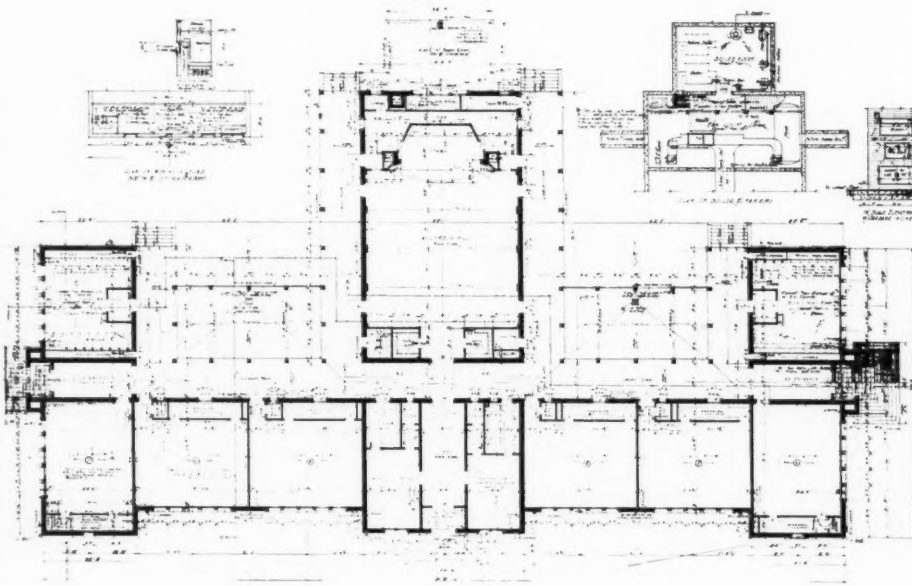
It may be that Dr. Terman found so many faults in the schools of Denver that the architecture counted for naught, and that is exactly its value, judging from his report of the prevailing conditions. On the other hand, let us assume that a similar survey would bring to light a group of schools measuring up to the requirements for educational work; would it not be of added value to the report to have a criticism of the good or ill effects of their architecture, so that a community, aye, and the architect, might know whether they were traveling in a rut or in a broad and progressive way? Many of the recently published photographs of both high and elementary schools, built within even the last few years, prompt this suggestion. It is apparent that the rule requiring at least twenty per cent of floor area in glass area has so thoroughly obsessed the architects that their buildings have a most forbidding appearance. In fact, the photographs of the finished work indicate very little effort if any to accomplish anything more than to provide sufficient light to the interior. This is particularly true of the school buildings of the Middle West, which have come to our notice and observation.

The community which today is part and parcel of the school has been woefully neglected. In many States, particularly Ohio, the laws governing the construction of schools are so drastically rigid, and in many instances rigid in the wrong direction, that the cost of school buildings is entirely out of proportion to the results attained.

In Ohio, the School Building Code was passed by the State Legislature shortly after the disastrous Collingwood fire, where more than one hundred and eighty children lost their lives. In consequence of this hasty legislation, the code would indicate that the succeeding generations must endure eyesore punishments from the barren, prison-like monuments as reminders of the laxity and shortsightedness of those that preceded them. Lest there be any misunderstanding, let me say that safety first, last and all the time is the course to follow, but with intelligence, training and understanding of the problem, safety ought to be had without botching up the remaining parts of the problem.

Should our State ever incorporate in its statutes a school building law, it is the earnest hope that the school man, the architect, the civil and mechanical engineer will be called in to deliberate on its draft for flexibility as well as for safety. And the Lord knows that such a comprehensive statute is very much needed.

The Committee on Standardization of Schools of the National Education Association, of which the writer is a member, has



FLOOR PLAN, BROADMOOR SCHOOL, SAN LEANDRO, CAL.

JOHN J. DONOVAN, ARCHITECT



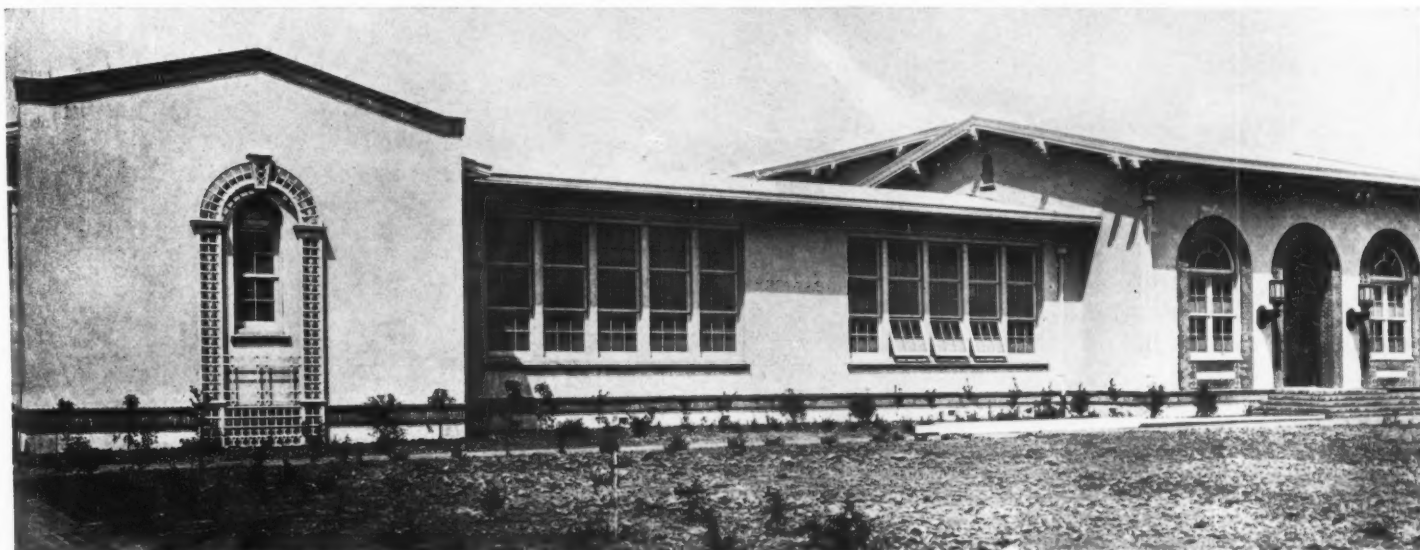
One of the Freehand Drawing Rooms, Oakland Technical High School, Oakland, Cal.
JOHN J. DONOVAN, Architect H. HORNBOSTEL, Consulting Architect



Typewriting Class Room, Oakland Technical High School, Oakland, Cal.
JOHN J. DONOVAN, Architect H. HORNBOSTEL, Consulting Architect

mapped out a tentative program, including the study of school building codes with the intention of making

Greatly is it to be desired that the more capable men of the architectural profession turn their endeav-



McKINLEY ELEMENTARY SCHOOL, SAN LEANDRO, CAL.

JOHN J. DONOVAN, Architect

recommendations and suggestions for just such regulations.

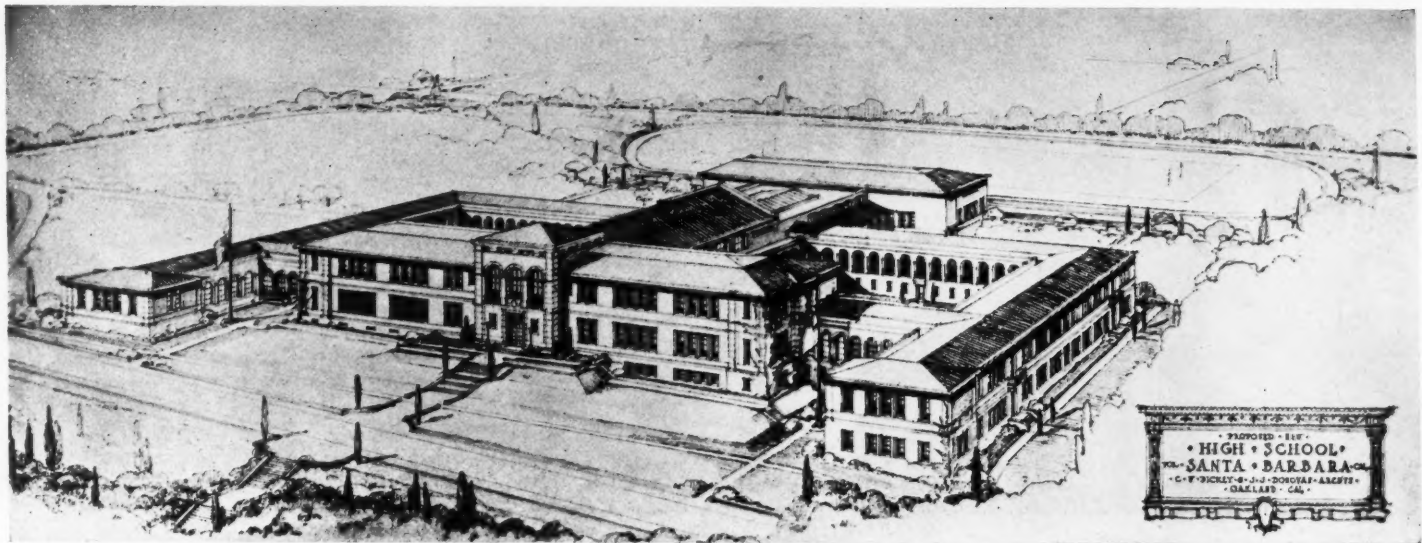
ors to this field of work. For with such an entry of men of culture, refined taste and ability to master



One of the Cooking Rooms, Oakland Technical High School, Oakland, Cal.
JOHN J. DONOVAN, Architect H. HORNBOSTEL, Consulting Architect



Costume Designing Class, Oakland Technical High School, Oakland, Cal.
JOHN J. DONOVAN, Architect H. HORNBOSTEL, Consulting Architect



PERSPECTIVE

details, and of architectural ability, will great improvements follow. A new spirit, vital to education and society in general will be felt and will make for advancement in this world of ours which is ever struggling to lift itself up and out of the bondage of the trite and hackneyed repetitions of half-baked thoughts and unskilled executions.

Surely the men of the educational world will welcome the architect as a co-worker and collaborator in the survey of a school district. Such a union will mean much for the complete report. It will lead on to more light on the wisdom exercised in public expenditures. It will bring the architect closer to the school. His understanding of its functions and workings will be improved and made clearer, and the world will profit by this increased knowledge. The fairness and truth of his criticisms, based above pettiness or self-importance, will serve to enlighten not only those whose work he passes on, but those who have similar

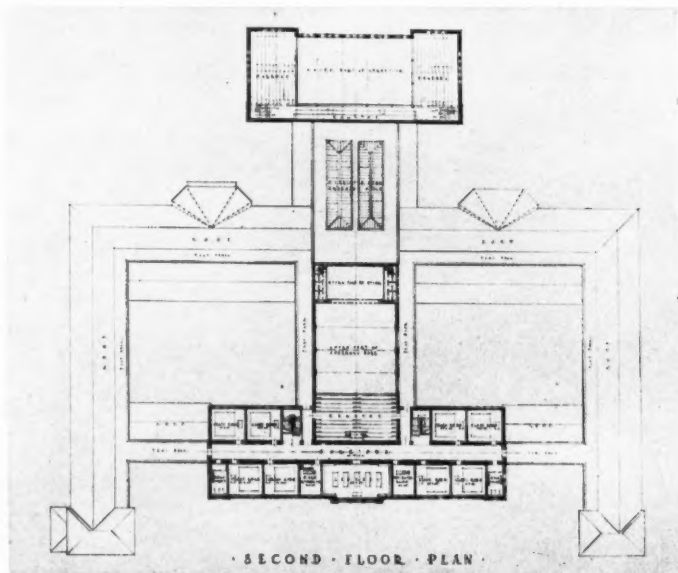
problems to solve, including the school man, and last, but not least, the world will be that much better off.

The Educational Function of School Architecture

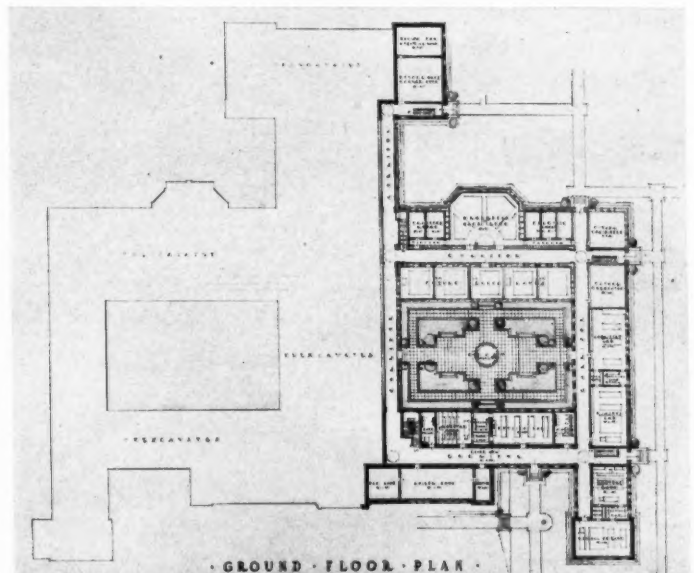
(Continued from page 217)

duce grounds, buildings and equipment that will become efficient means of daily reminding the children of the community's fine desires and interest in them.

The utility, stability and beauty of the buildings and grounds may become the means of developing the tastes of the children of the community. The harmony, proportion, symmetry, ornament and color of a beautiful school plant daily impressed upon the plastic mind and body of the children develop standards of judgment. If the school teachers and the community are conscious of these important means and make the right use of them, they become means also of developing community consciousness, civic pride and good citizenship.



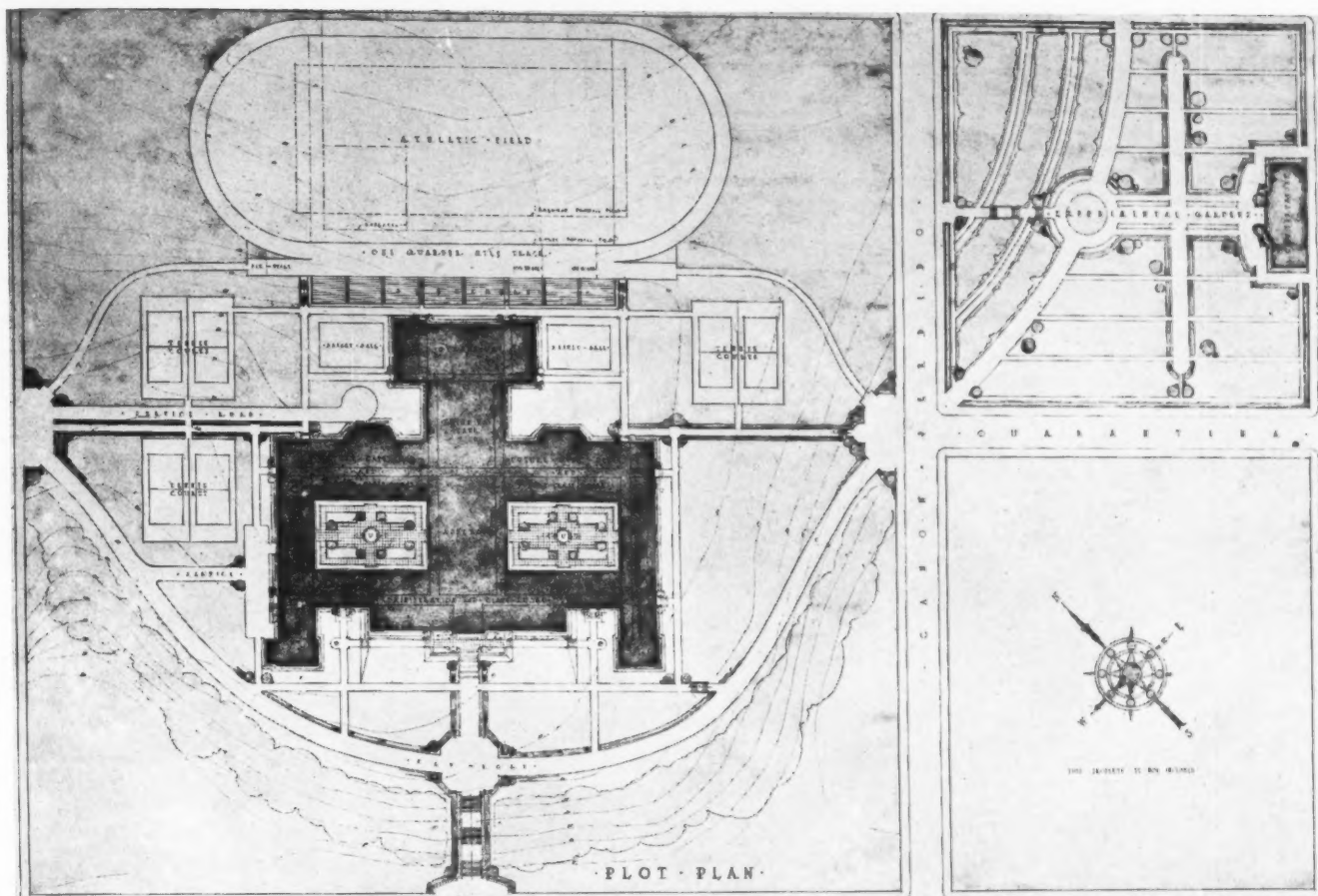
SECOND FLOOR PLAN



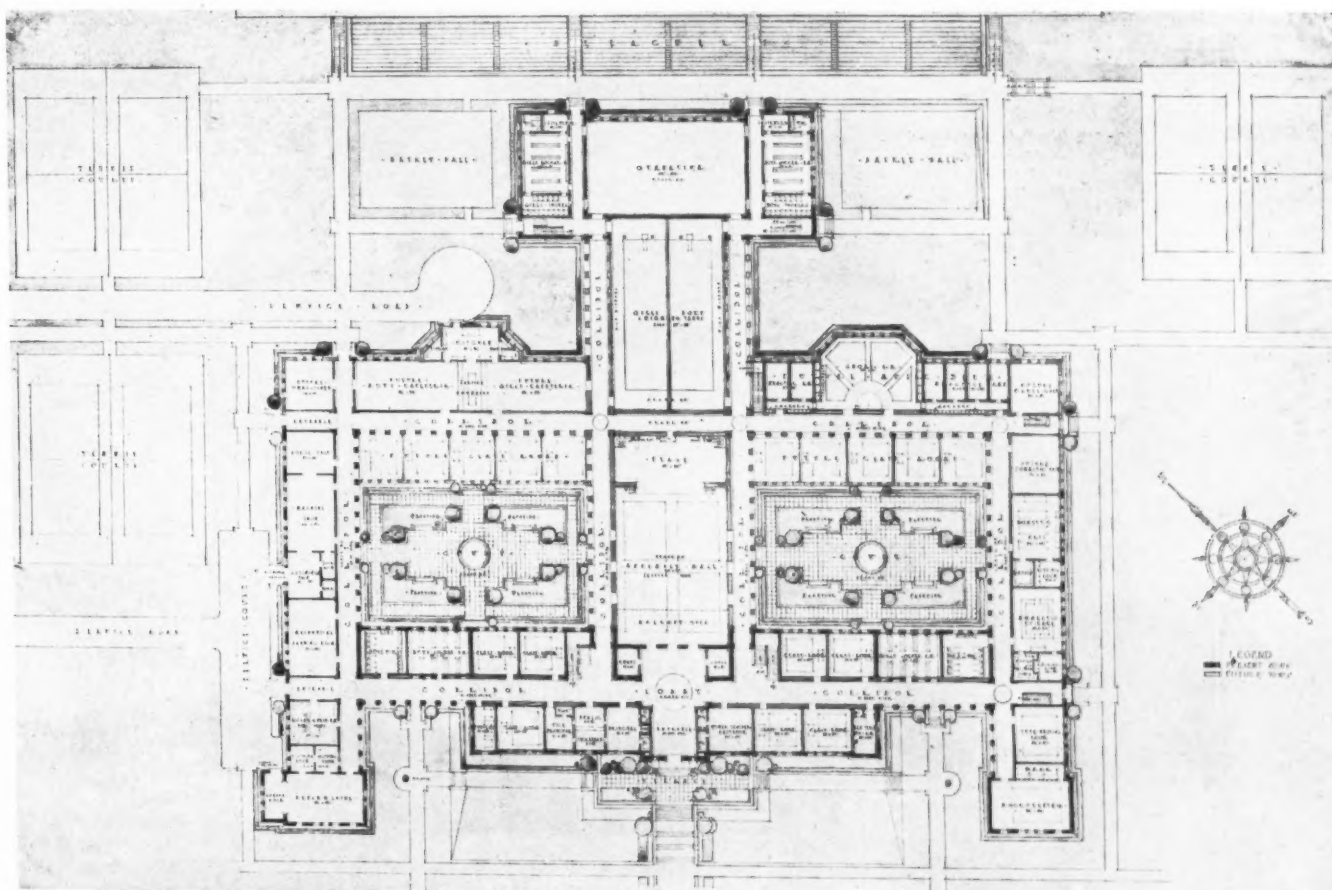
GROUND FLOOR PLAN

PROPOSED NEW HIGH SCHOOL, SANTA BARBARA, CAL.

C. W. DICKEY AND JOHN J. DONOVAN, ARCHITECTS

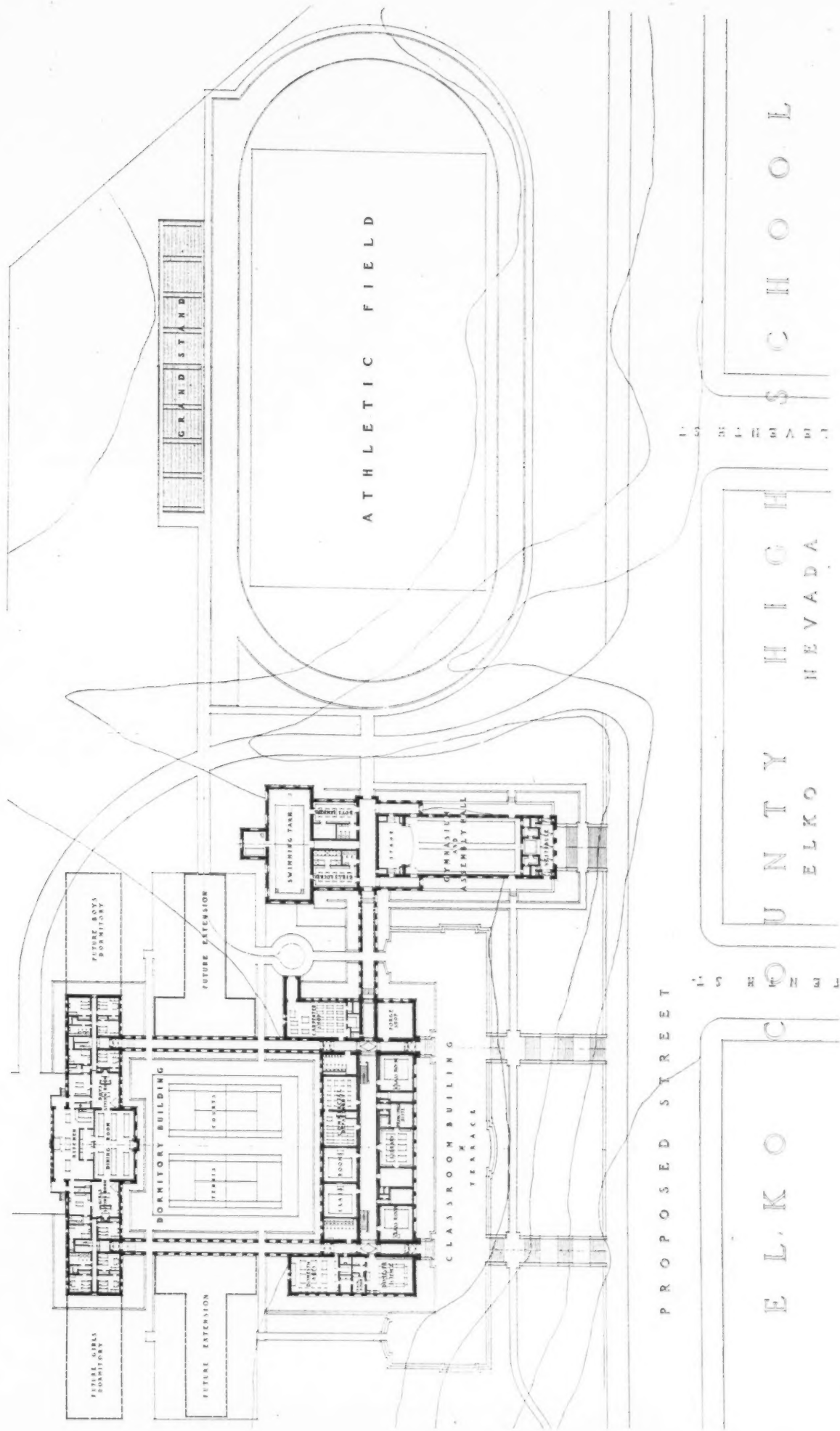


PLOT PLAN

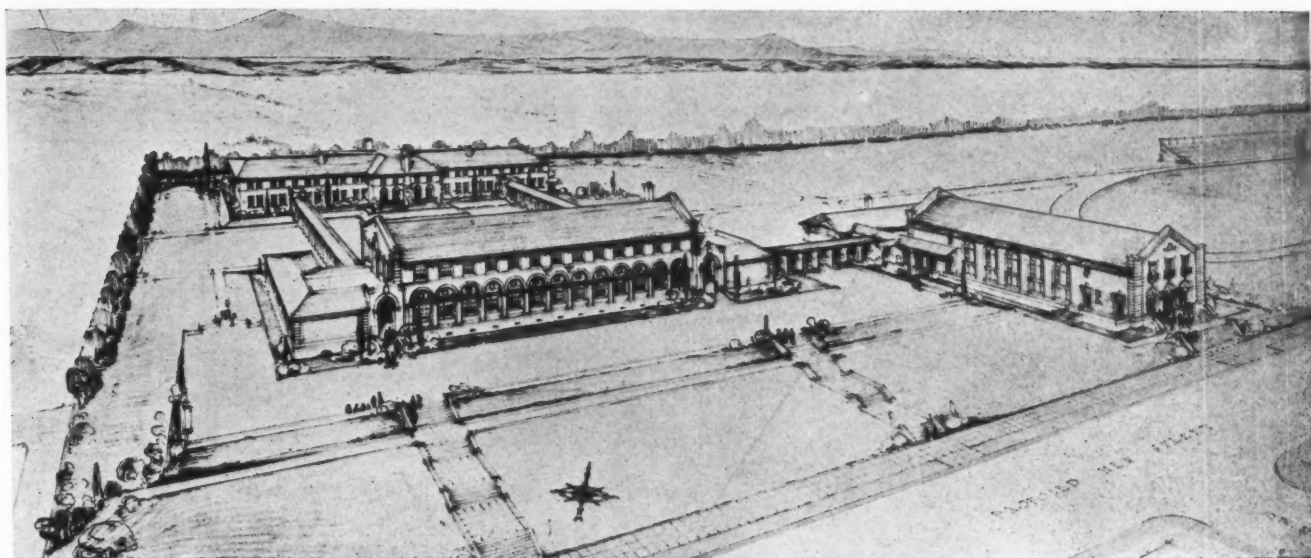


FIRST FLOOR PLAN

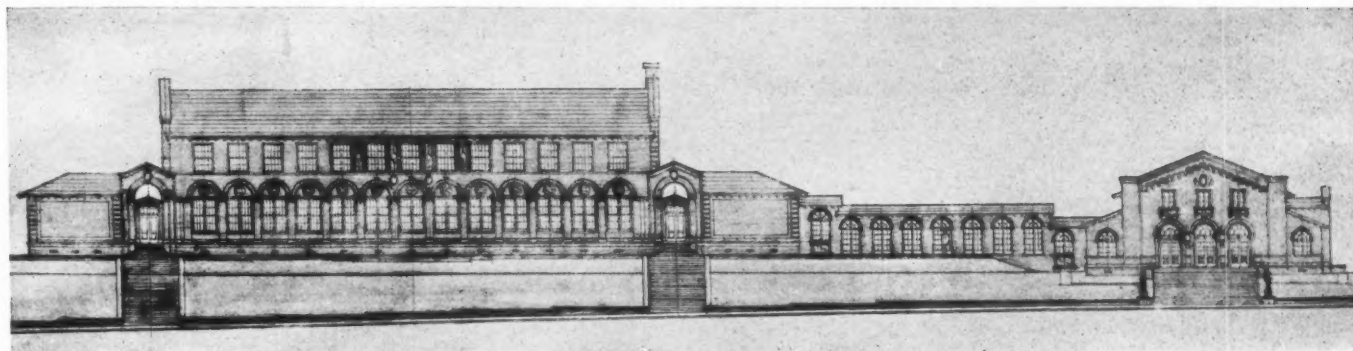
PROPOSED NEW HIGH SCHOOL FOR SANTA BARBARA, CAL.
C. W. DICKEY AND JOHN J. DONOVAN, ARCHITECTS



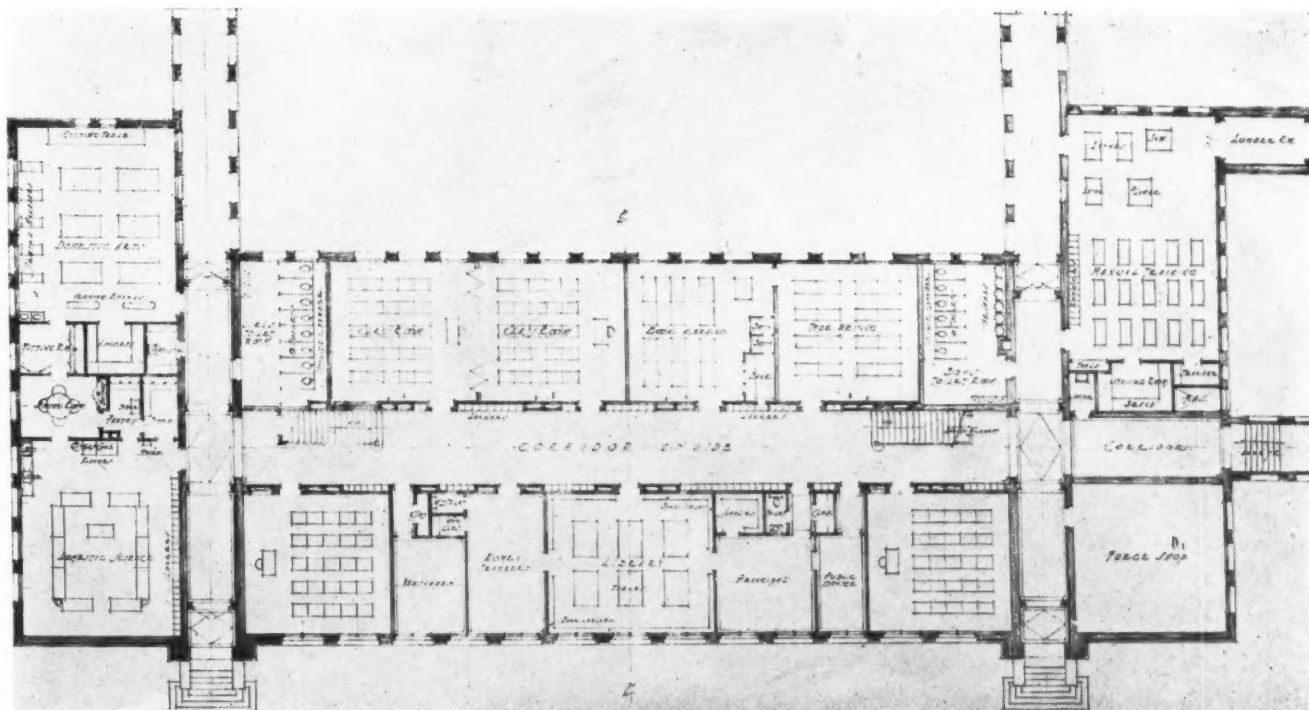
ELKO COUNTY HIGH SCHOOL, ELKO, NEVADA
C. W. DICKEY AND JOHN J. DONOVAN, ARCHITECTS



PERSPECTIVE



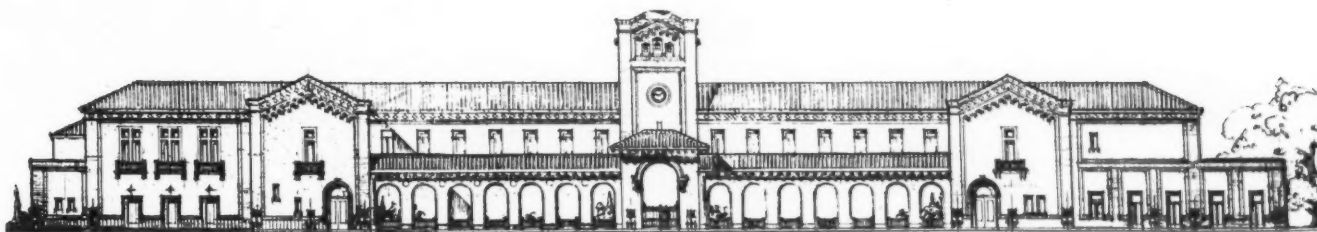
GENERAL ELEVATION



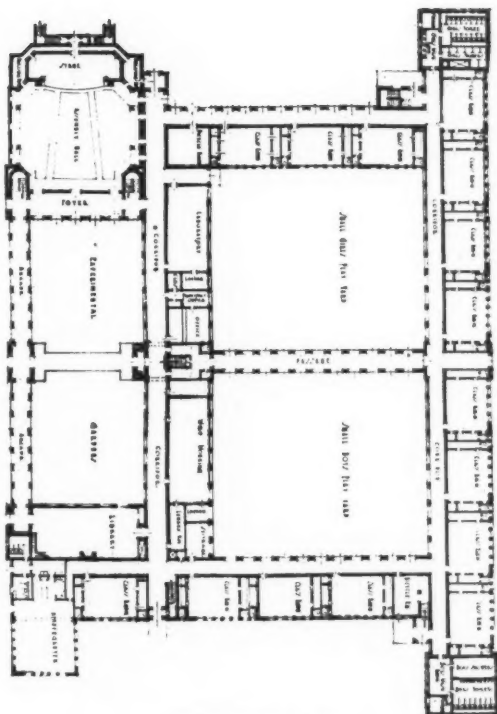
FIRST FLOOR PLAN CLASS ROOM BUILDING
ELKO COUNTY HIGH SCHOOL, ELKO, NEVADA
C. W. DICKEY AND JOHN J. DONOVAN, ARCHITECTS



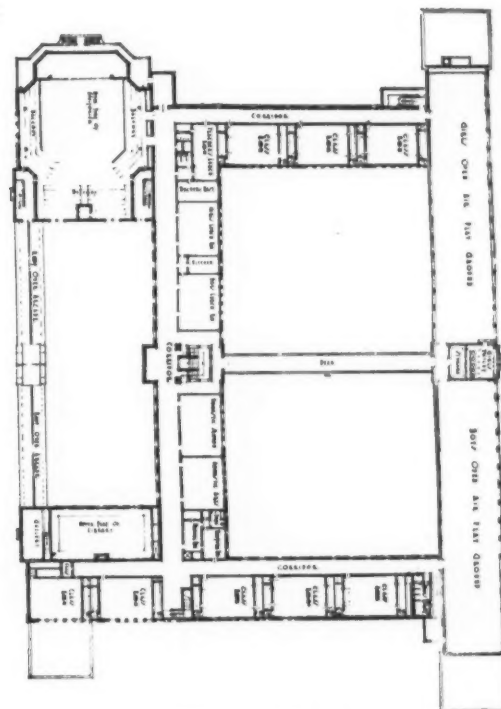
PERSPECTIVE OAK PARK ELEMENTARY SCHOOL, SACRAMENTO, CAL.



CYPRESS AVENUE ELEVATION

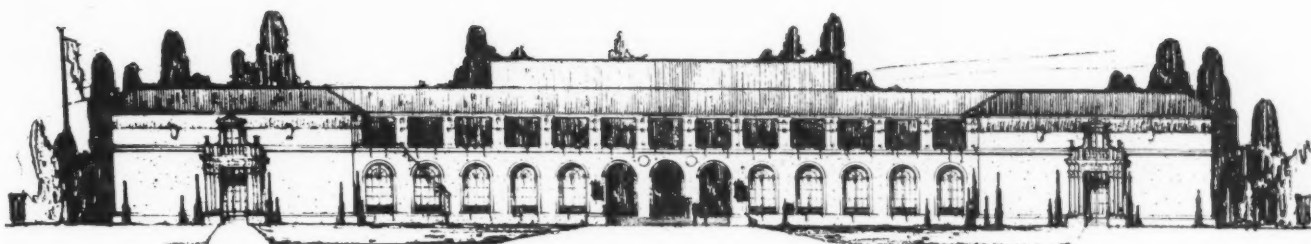


FIRST FLOOR, PLAN

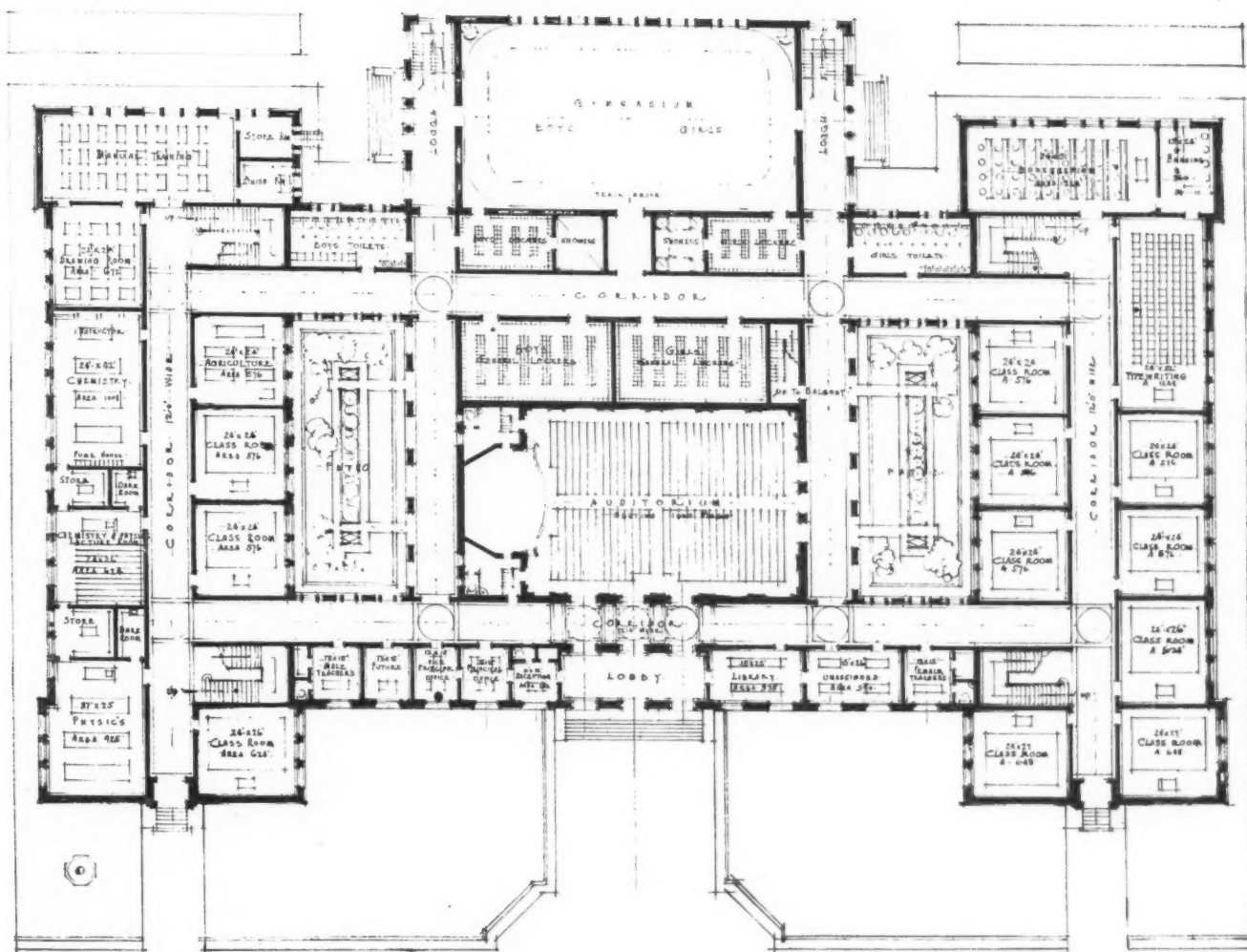


SECOND FLOOR, PLAN

OAK PARK ELEMENTARY SCHOOL, SACRAMENTO CAL.
JOHN J. DONOVAN, ARCHITECT



FRONT ELEVATION



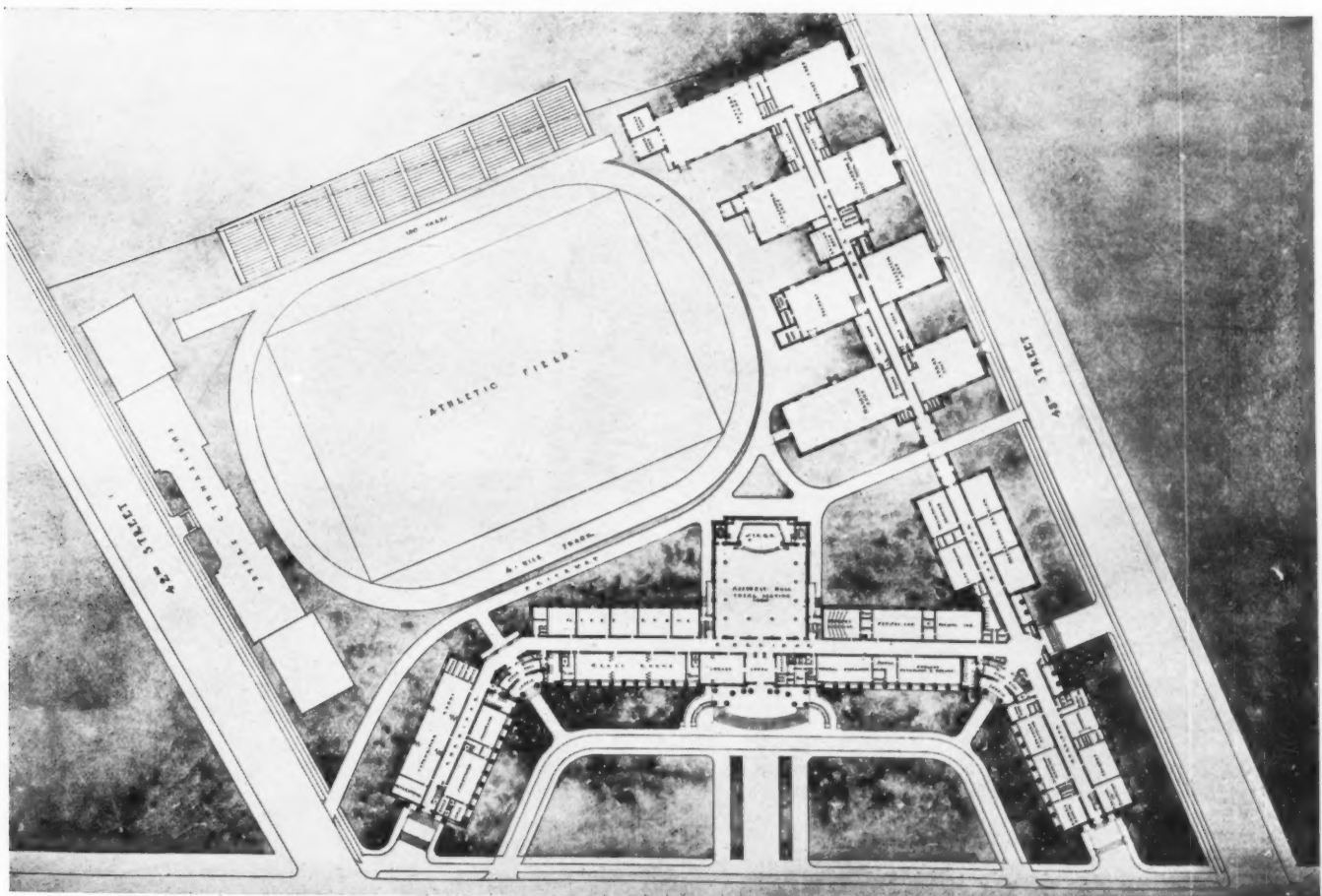
FIRST FLOOR PLAN

PROPOSED CHICO HIGH SCHOOL, CHICO, CAL.

JOHN J. DONOVAN, ARCHITECT



SECTION OF BROADWAY ELEVATION



FIRST FLOOR AND PLOT PLAN

OAKLAND TECHNICAL HIGH SCHOOL, OAKLAND, CAL.

JOHN J. DONOVAN, ARCHITECT

H. HORNOSTEL, CONSULTING ARCHITECT



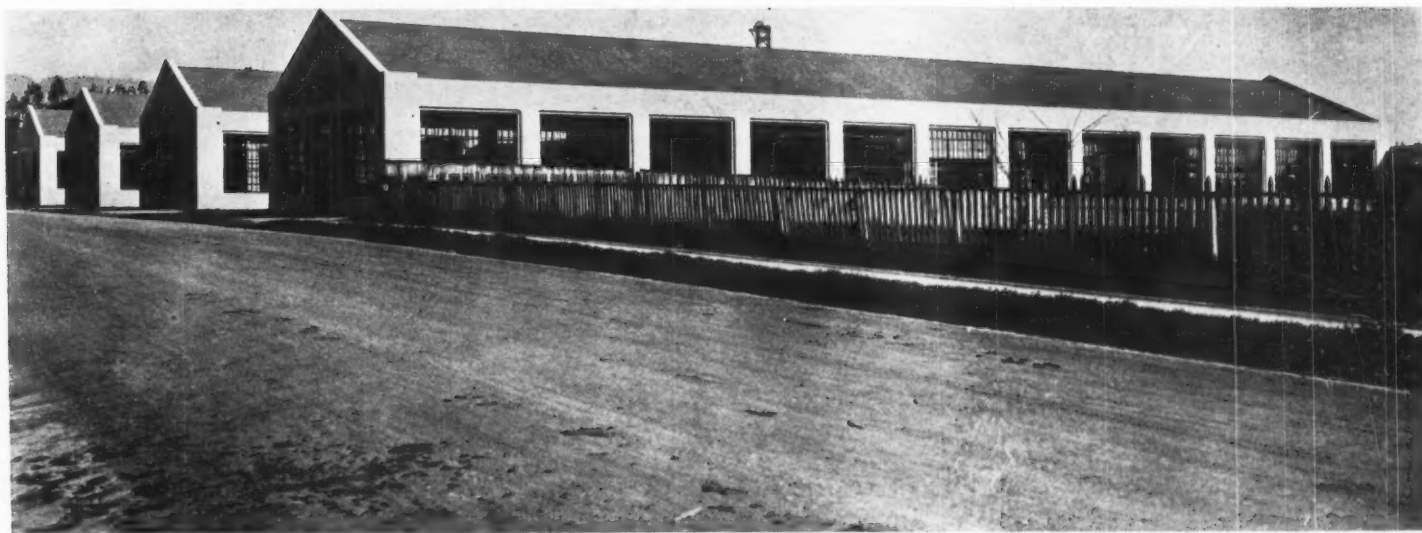
BROADWAY FACADE



CABINET SHOP

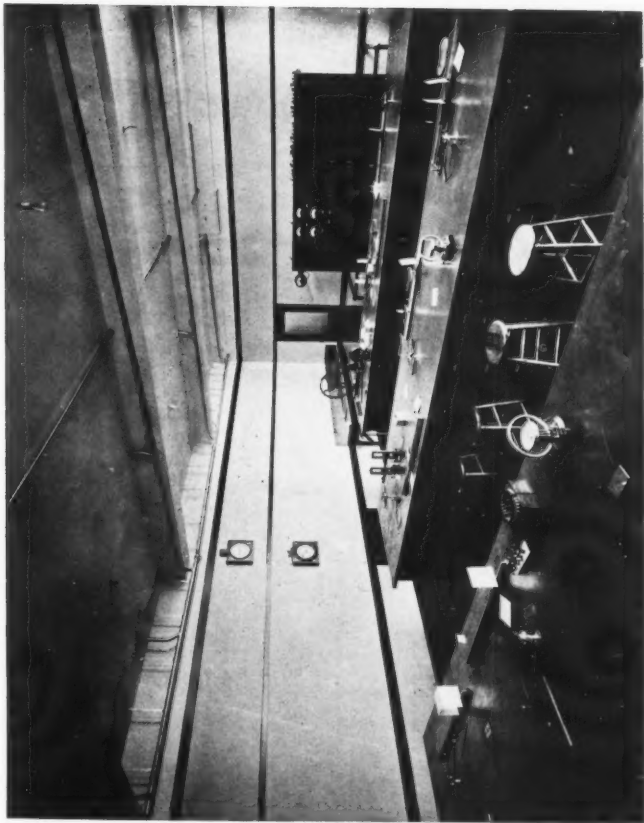


WOOD WORKING MACHINE SHOP

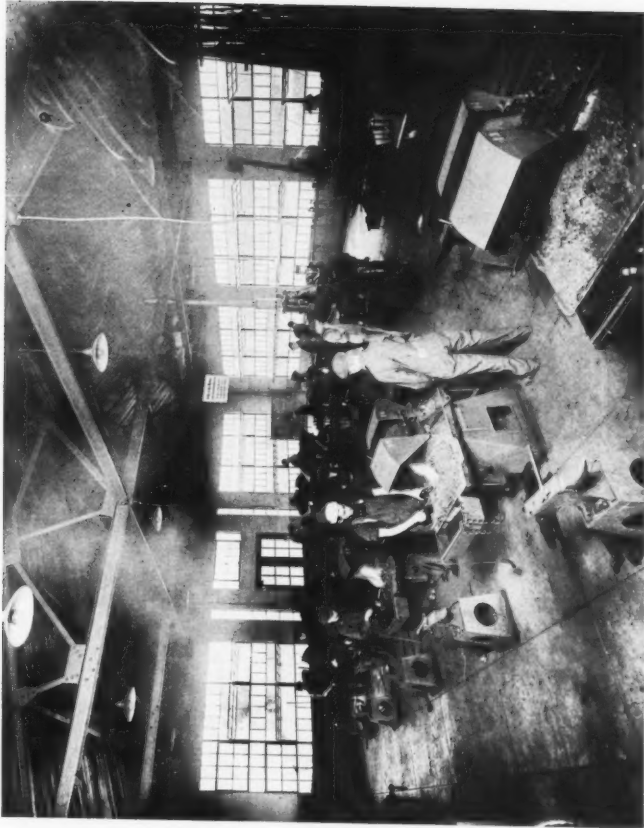


NORTH VIEW OF SHOPS

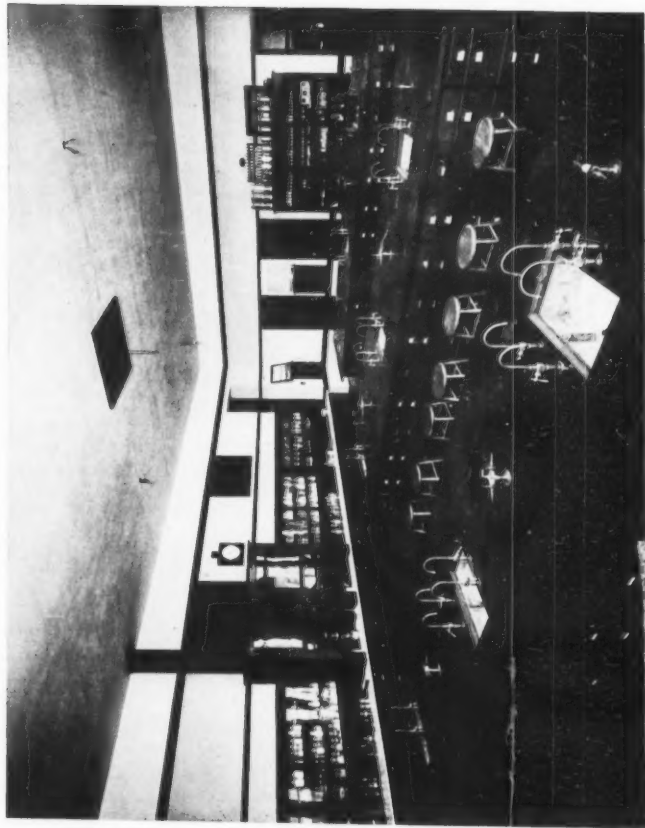
OAKLAND TECHNICAL HIGH SCHOOL, OAKLAND, CAL.
JOHN J. DONOVAN, ARCHITECT H. HORNOSTEL, CONSULTING ARCHITECT



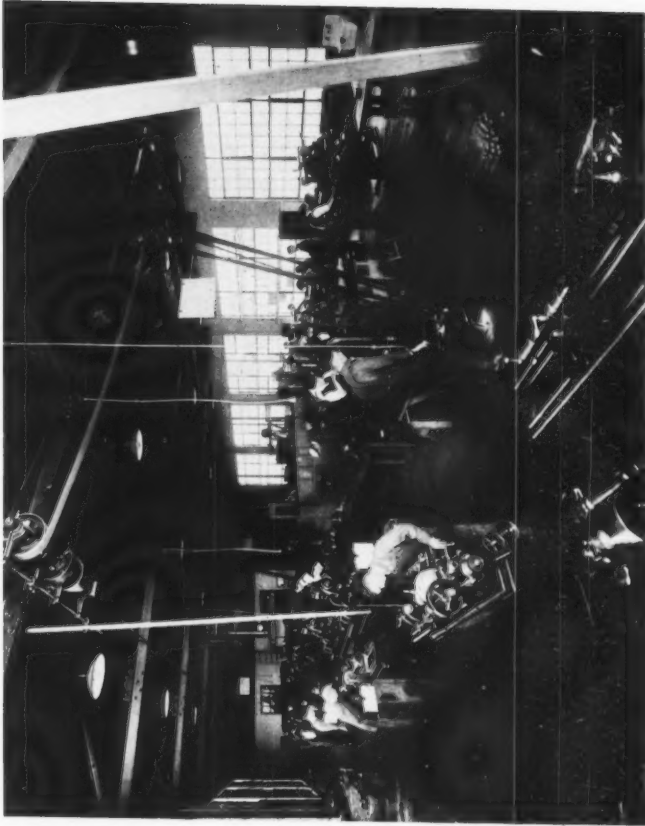
ADVANCED PHYSICS LABORATORY



FORGE SHOP



ONE OF THE CHEMISTRY LABORATORIES



MACHINE SHOP

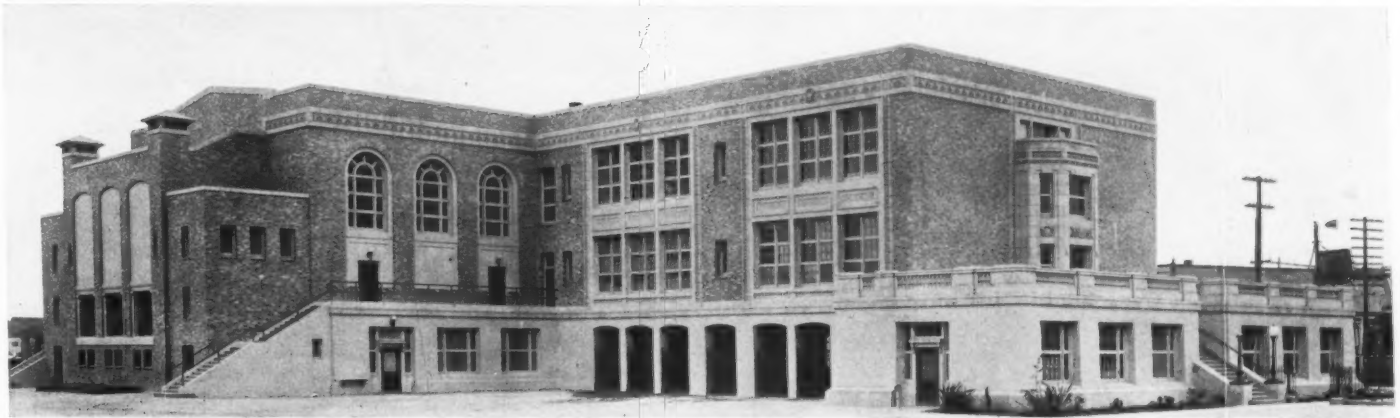
OAKLAND TECHNICAL HIGH SCHOOL, OAKLAND, CAL.

JOHN I. DONOVAN, ARCHITECT

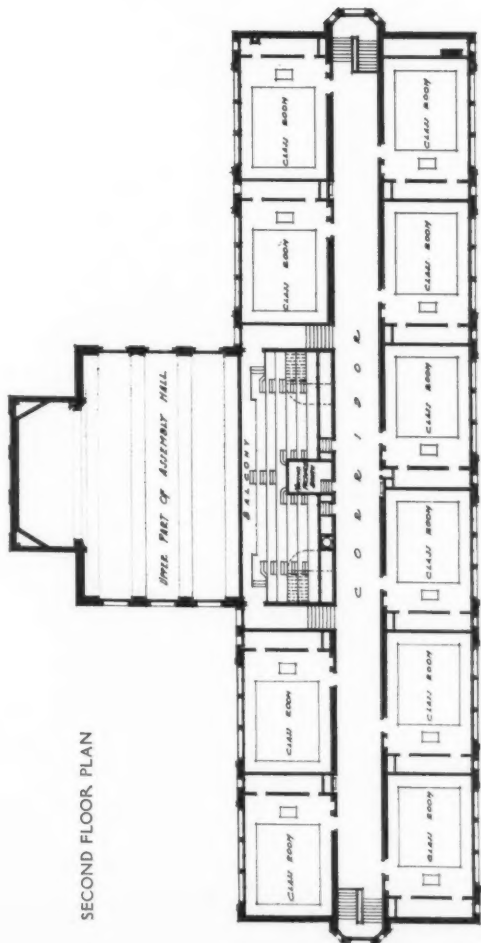
H. HORNBOSTEL, CONSULTING ARCHITECT



SOUTH ELEVATION



NORTH WEST VIEW



SECOND FLOOR PLAN



FIRST FLOOR PLAN



GROUND FLOOR PLAN



WATER CLOSET INSTALLATION FOR BOTH BOYS' AND GIRLS' TOILET ROOMS



TYPICAL BOYS' TOILET ROOM

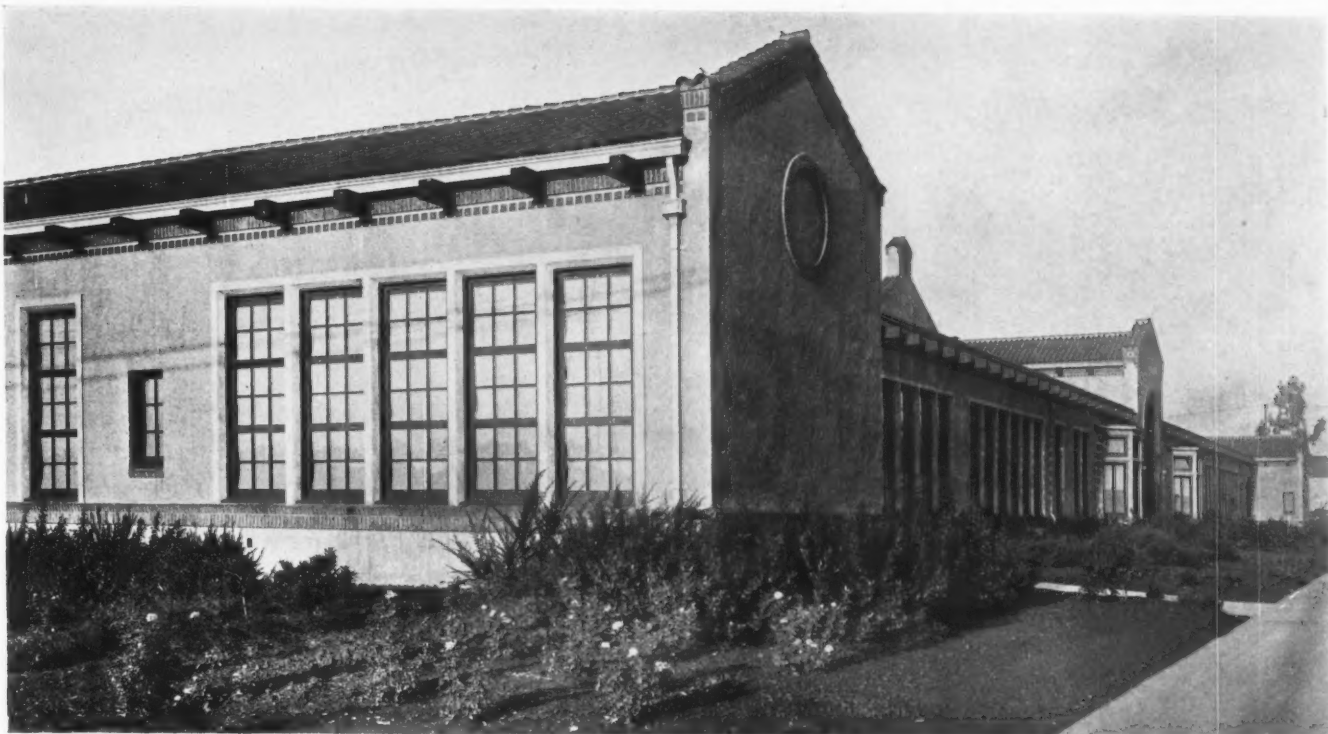


MANUAL TRAINING ROOM

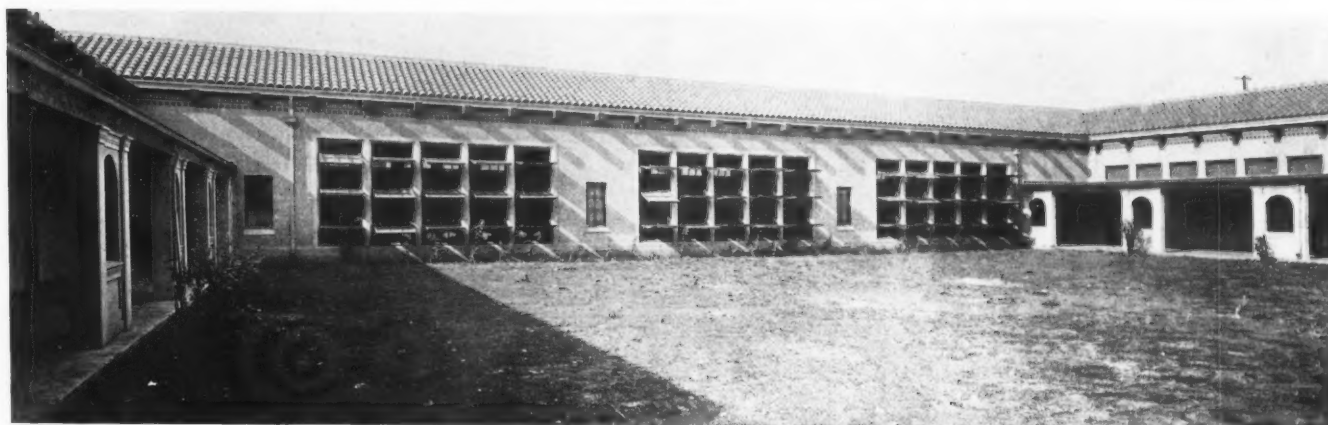


DOMESTIC SCIENCE ROOM

CLAWSON ELEMENTARY SCHOOL, OAKLAND, CAL.
JOHN I. DONOVAN, ARCHITECT

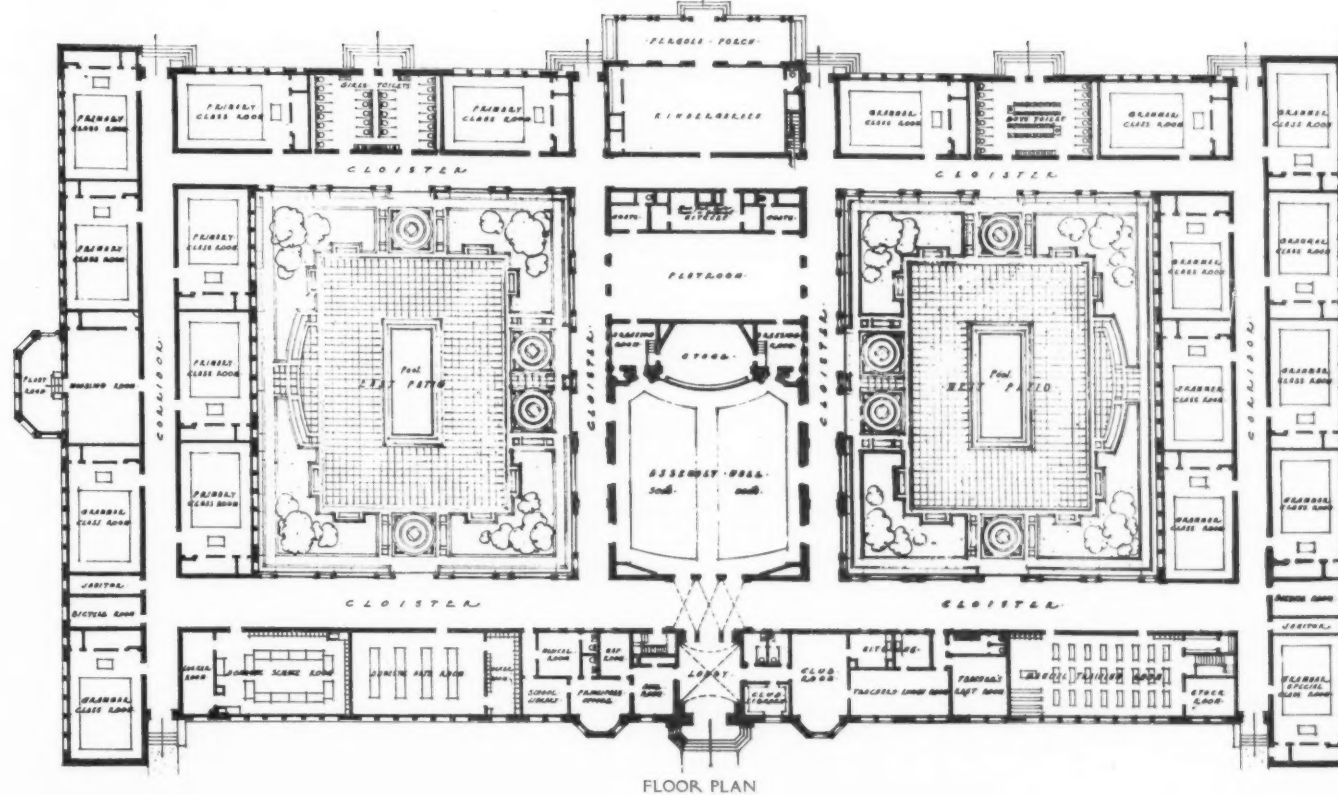


FRONT VIEW

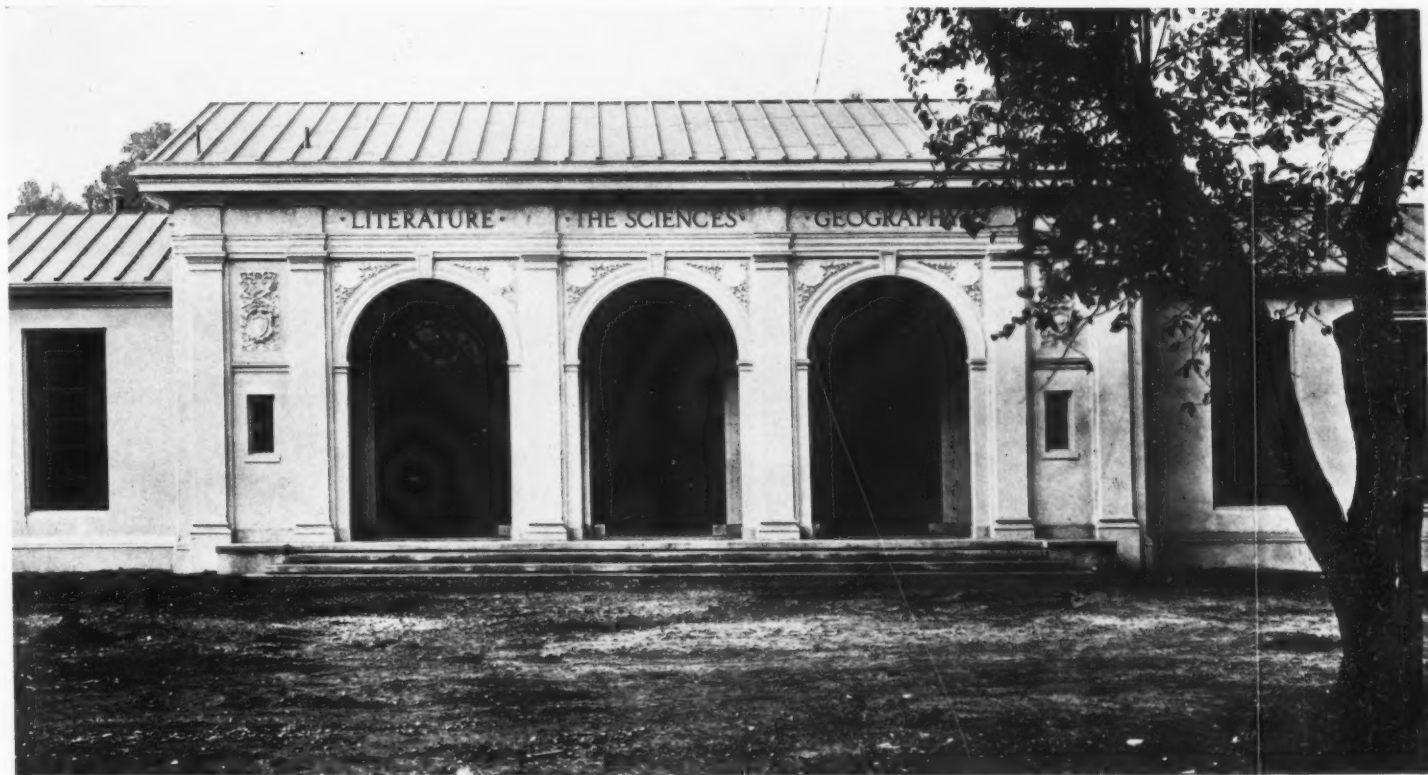


VIEW FROM PATIO

THE ARCHITECT



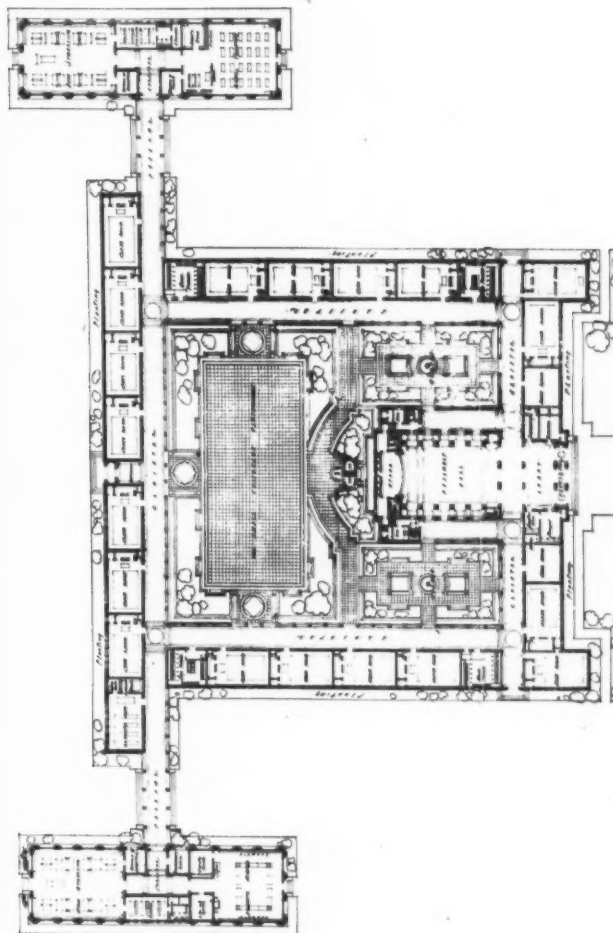
FLOOR PLAN



MAIN ENTRANCE



PATIO



FLOOR PLAN

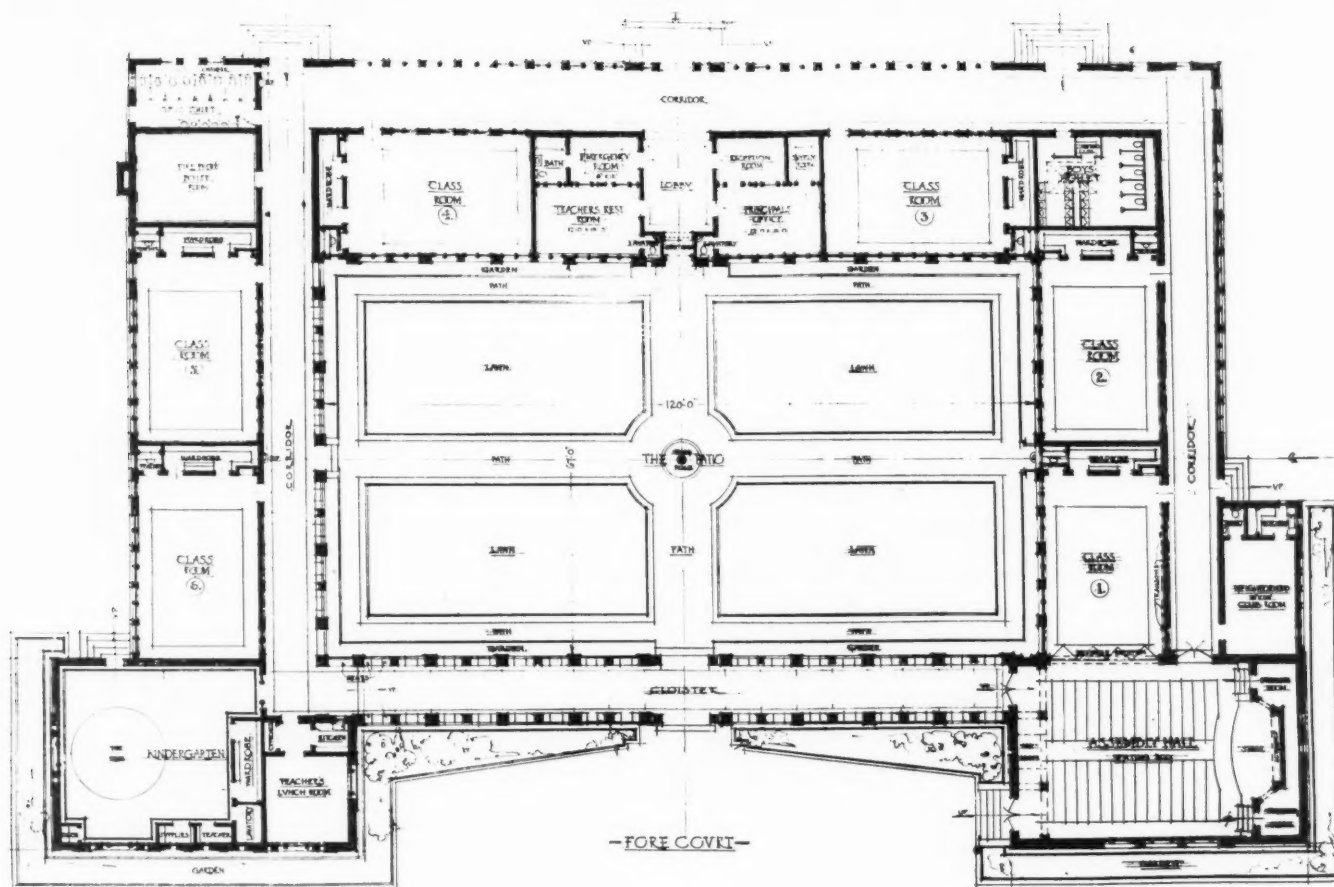
LOCKWOOD ELEMENTARY SCHOOL, OAKLAND, CAL.
JOHN J. DONOVAN AND LEWIS P. HOBART, ASSOCIATE ARCHITECTS



FRONT ELEVATION



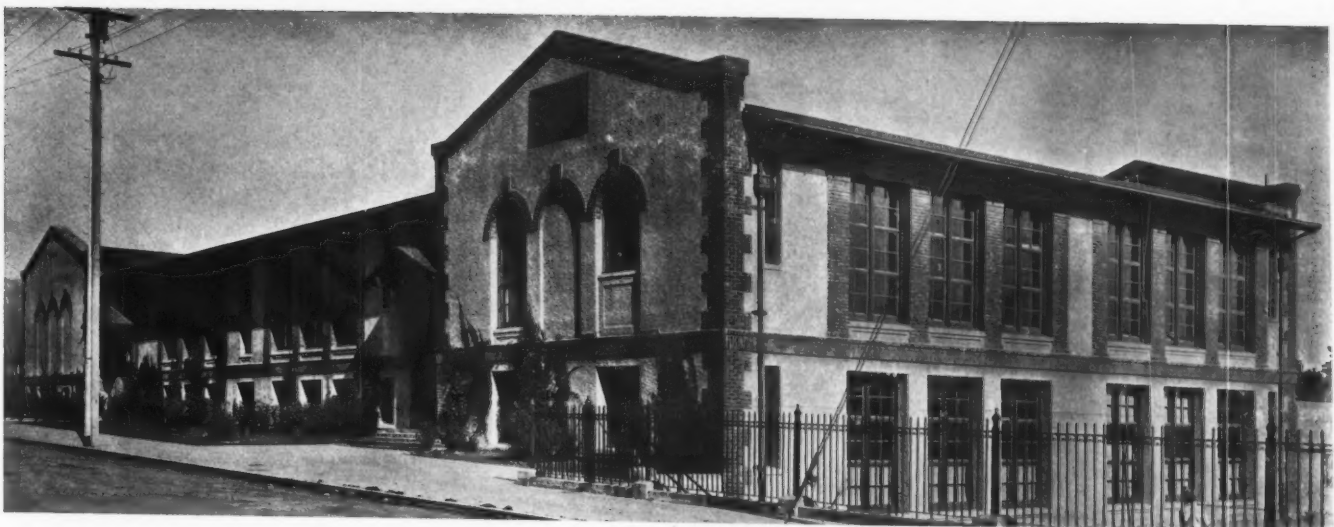
PATIO



FLOOR PLAN

SANTA FE ELEMENTARY SCHOOL, OAKLAND, CAL.

JOHN J. DONOVAN, ARCHITECT

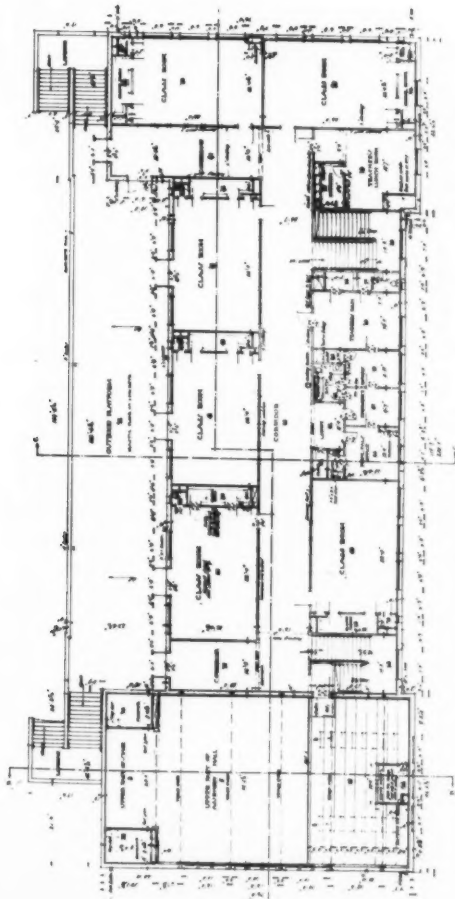


McCHESNEY ELEMENTARY SCHOOL

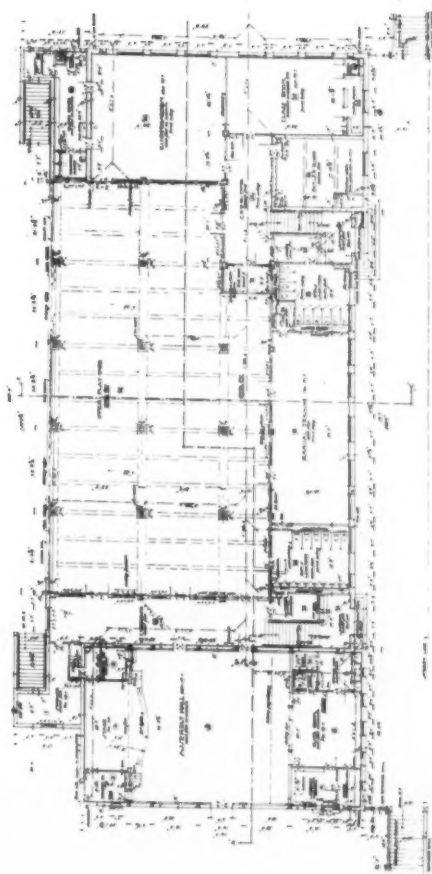


TERRACE FOR OUT-OF-DOOR STUDY

THE ARCHITECT

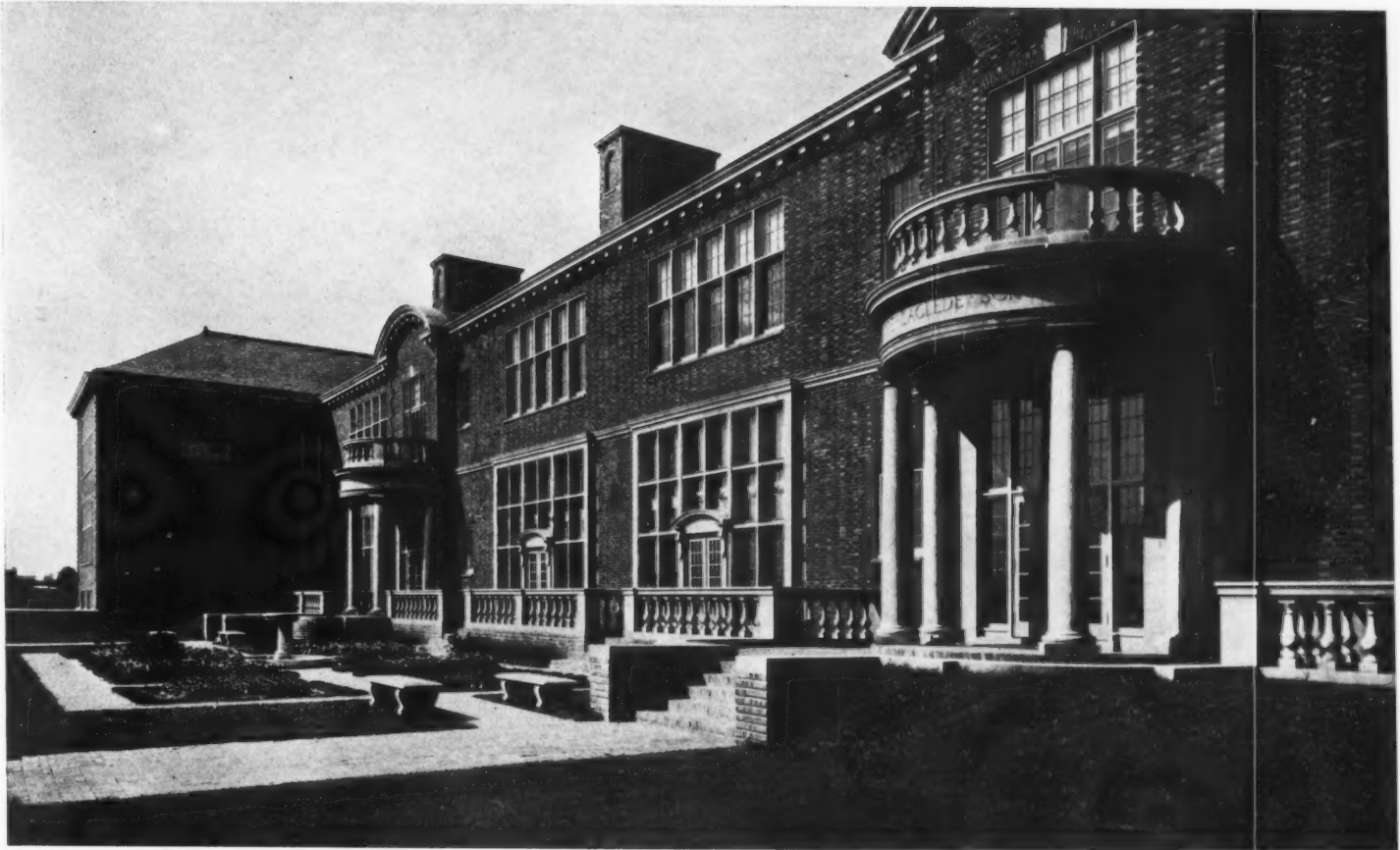


MAIN FLOOR PLAN

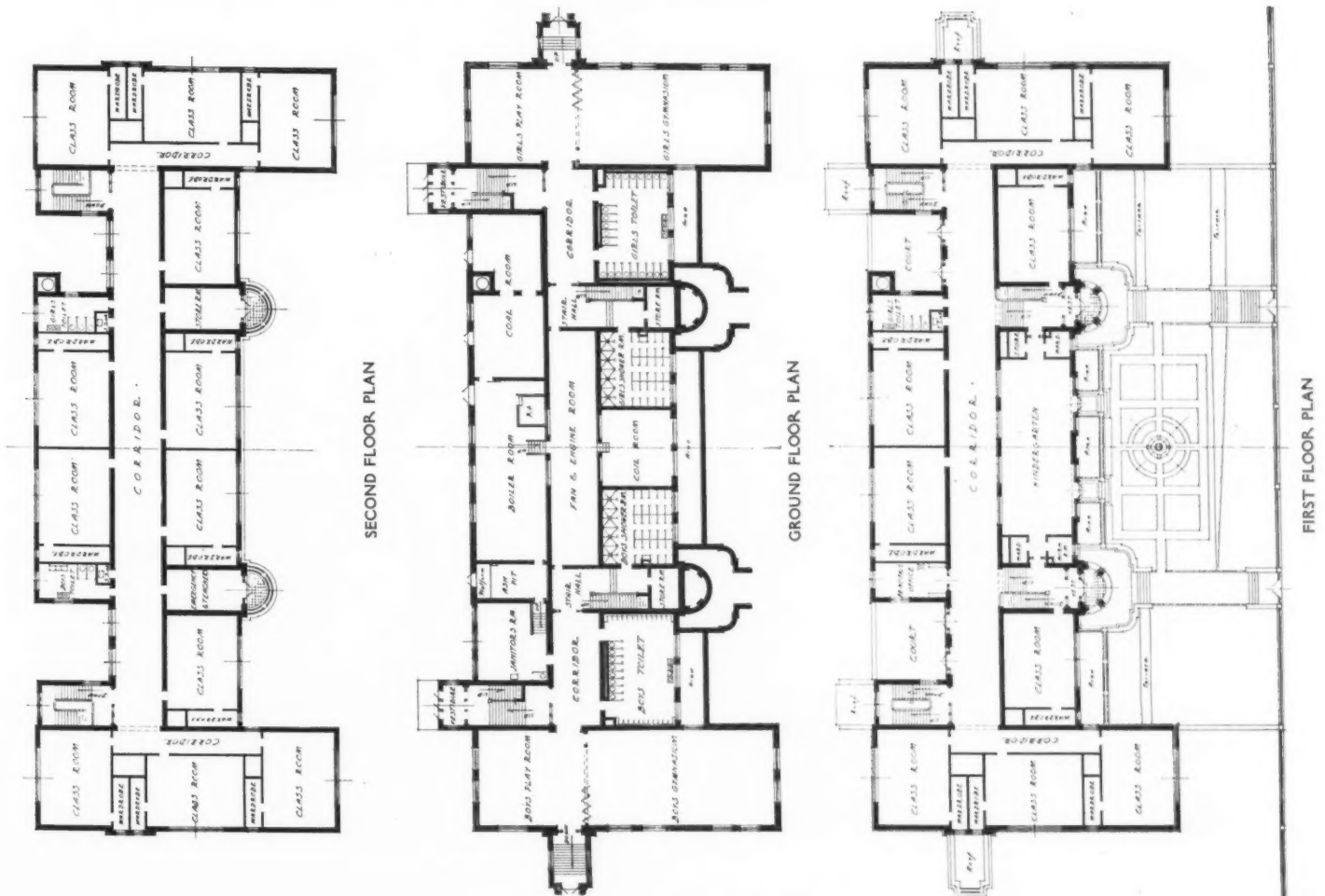


GROUND FLOOR PLAN

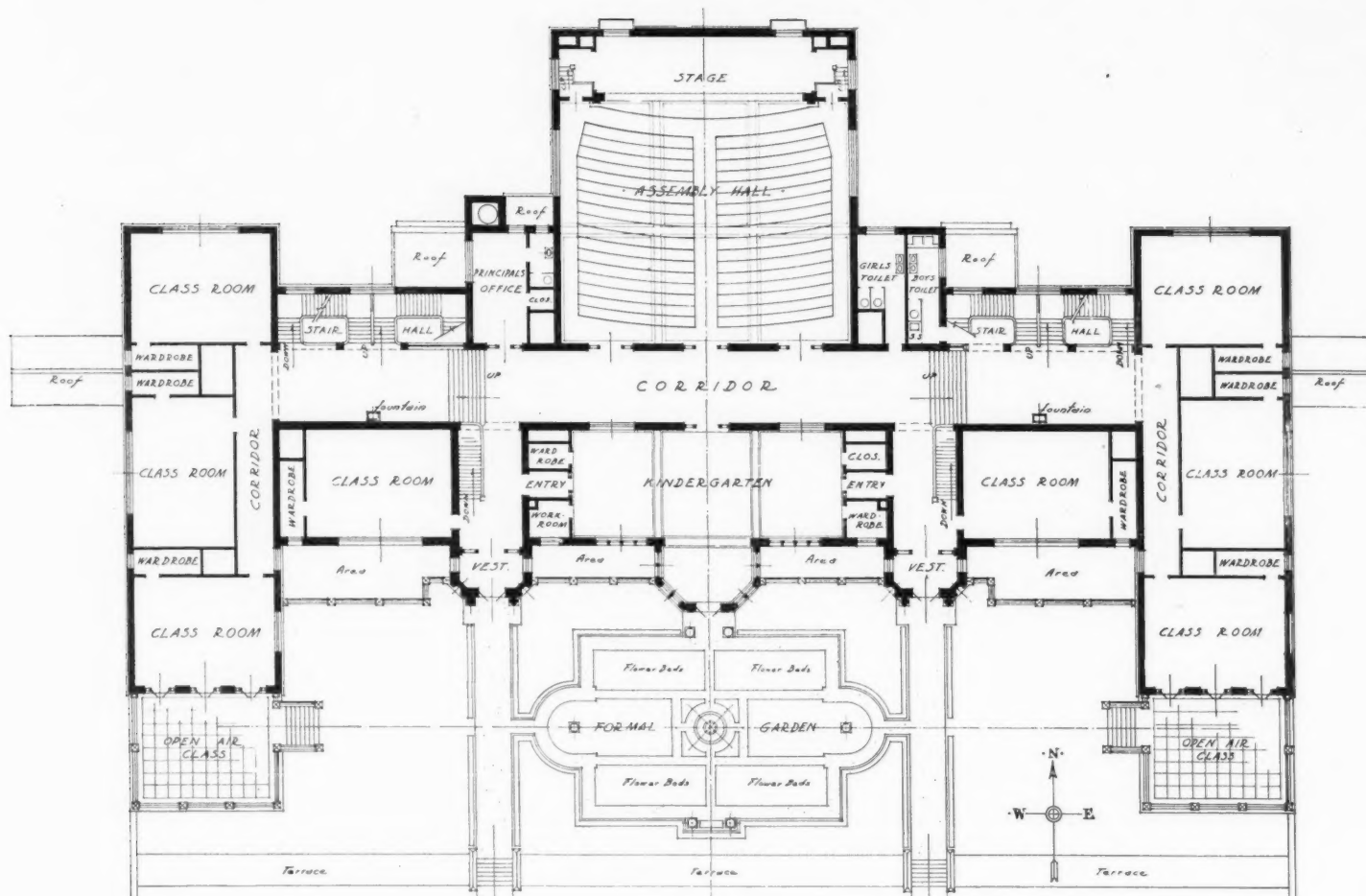
McCHESNEY ELEMENTARY SCHOOL, OAKLAND, CAL.
JOHN J. DONOVAN, ARCHITECT



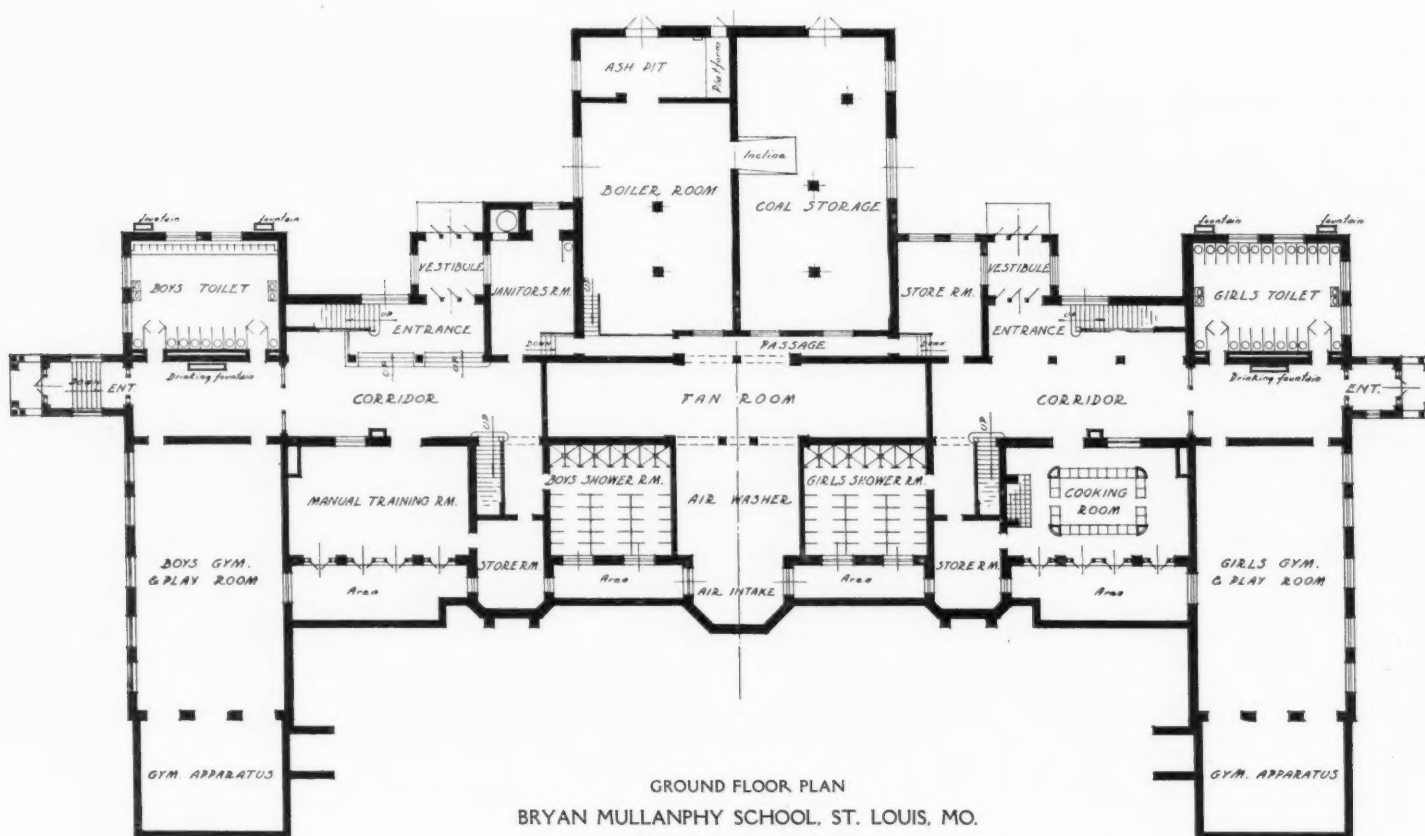
DETAIL OF FRONT ELEVATION



PIERRE LACLEDE SCHOOL, ST. LOUIS, MO.
WM. B. ITTNER, ARCHITECT



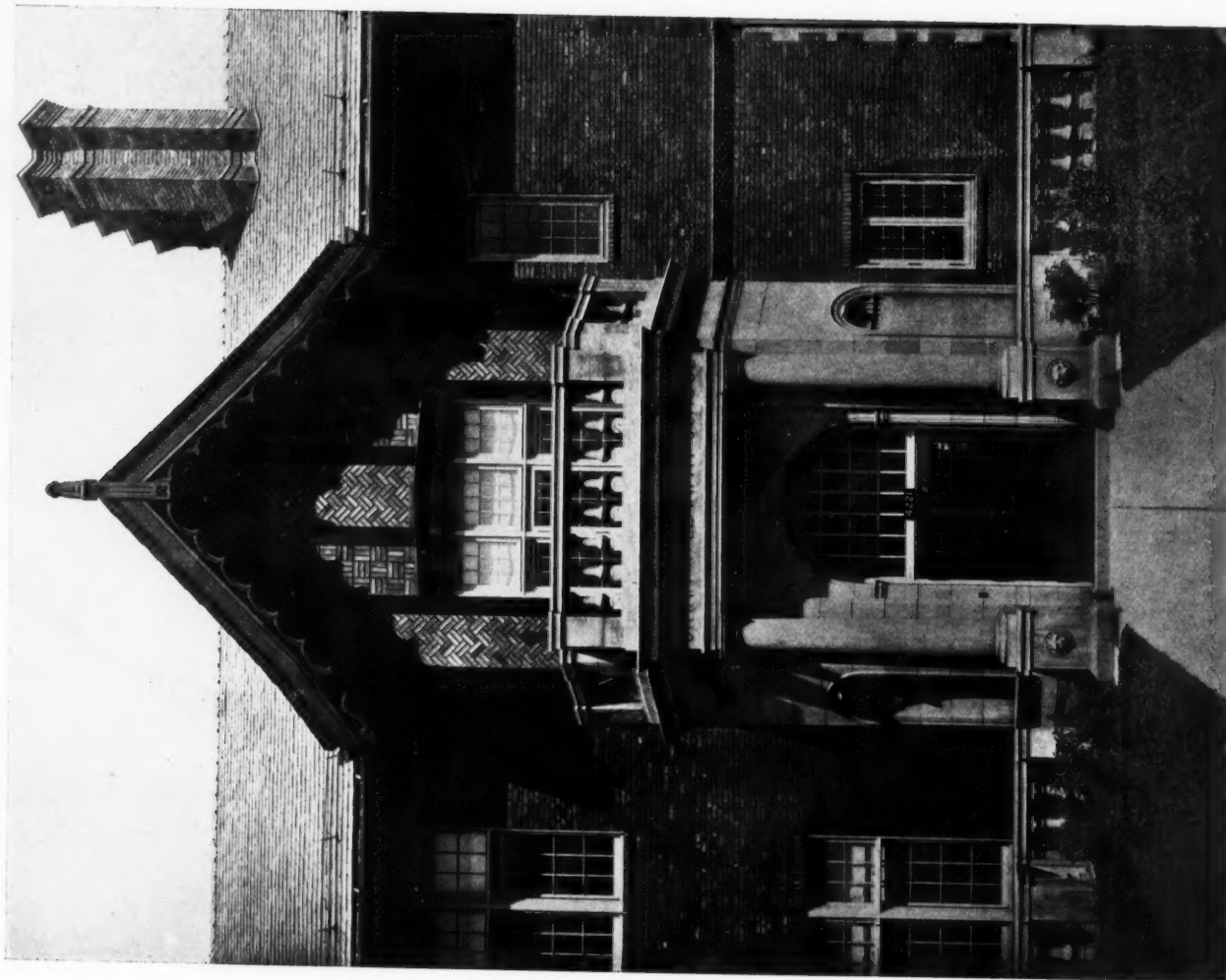
FIRST FLOOR PLAN



GROUND FLOOR PLAN
 BRYAN MULLANPHY SCHOOL, ST. LOUIS, MO.
 WM. B. ITTNER, ARCHITECT

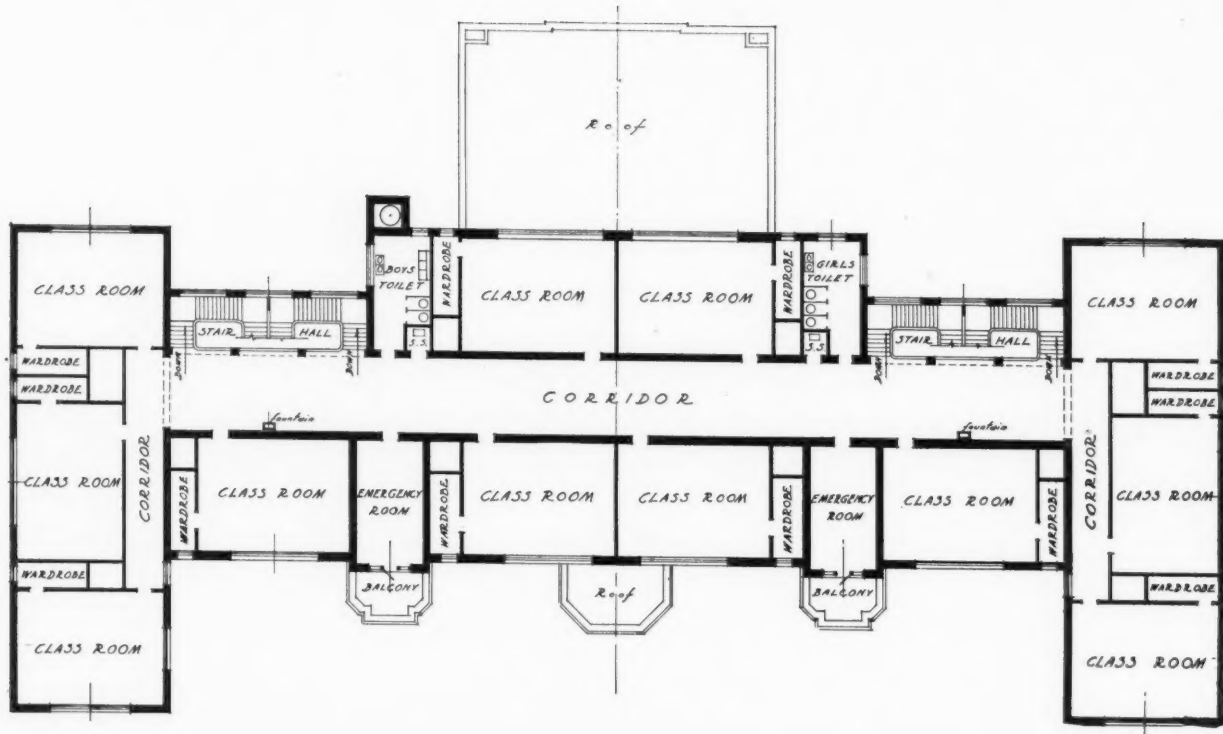


BRYAN MULLANPHY SCHOOL, ST. LOUIS, MO.
WM. B. ITTNER, ARCHITECT



MAIN ENTRANCE

BRYAN MULLANPHY SCHOOL, ST. LOUIS, MO.
WM. B. ITTNER, ARCHITECT



SECOND FLOOR PLAN

School Buildings of St. Louis, Mo.

By WM. B. ITTNER, F. A. I. A.

THE typical grammar school buildings of St. Louis are represented in the Bryan-Mullanphy and the Laeclde schools, plans of which are presented herewith. The buildings, always limited to a height of two stories, upon which are distributed its class rooms, are of the open or "E" type plan, generally set upon broad terraces, with their ground or basement floor abundantly lighted, and opening directly upon the playground. The buildings, except in the case of the smaller units, contain from twenty to

only, is five feet three inches wide and sixteen feet long. It contains the hooks for the pupils' wraps and a built-in rack for umbrellas.

The main corridor is generally fourteen feet to sixteen feet wide, and receives outside light for a considerable part of its length; the secondary corridors are never less than eight feet wide and invariably have outside light.

Three or more stairways are provided in the larger buildings; they are generally of reinforced concrete



BRYAN MULLANPHY SCHOOL, ST. LOUIS, MO.
WM. B. ITTNER, ARCHITECT

twenty-four class rooms, a kindergarten, which is always the equivalent of two class rooms, a principal's office, a teachers' rest room, and an emergency room, or clinic; two gymnasiums, two play rooms, manual training and domestic science room, and the necessary space for the heating and ventilating apparatus, fuel, and room for the janitors; if in the congested districts, shower-bath rooms for both boys and girls are also included in the equipment.

The class rooms are twenty-four feet wide and thirty-two feet six inches long. They will accommodate fifty pupils each; are unilaterally lighted, and provided with natural slate blackboards and bookcases. The wardrobe, which opens on class room

construction, five feet wide, and are located in relation to the class rooms to give maximum ease for egress and circulation.

Two or more entrances are provided directly to the first floor, with additional entrances to the ground floor opening directly upon the playgrounds.

The general toilets are placed upon the ground floor in well-lighted rooms, lined with white enameled brick; and, to minimize stair climbing, toilets for both sexes are placed upon the class-room floors, each provided with a limited number of fixtures; janitors' broom closets with slop sinks are also provided on each floor. When school baths are provided, they are placed on the ground floor in well-lighted, enameled

The Landscape Improvement of School Grounds

By PROF. J. W. GREGG, University of California

IN this great State of California, which nature has so abundantly supplied with a wealth of resources and so much beautiful natural scenery, it would be reasonable to expect that every phase of civic life would be found developing in its own ideal environment. Strange as it may appear, however, the great amount of scenic wealth which nature in a most generous mood so lavishly bestowed upon this fair State, has not made us appreciate fully the æsthetic or practical value of landscape beauty as it should exist around the "homes of men."

In many sections of California, this scenic beauty

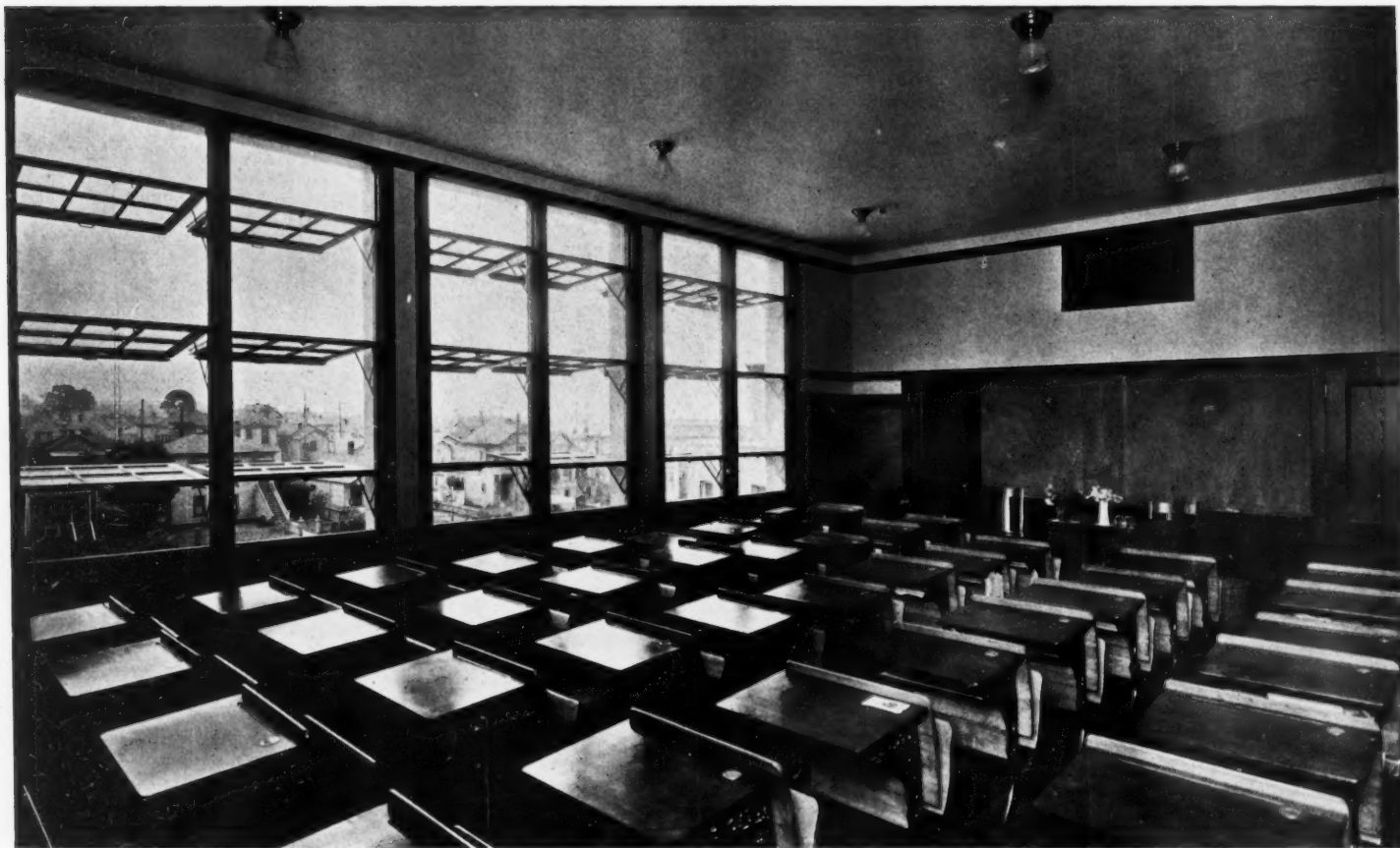


View Showing Covered Play Space, McKinley Elementary School, San Leandro, Cal.
JOHN J. DONOVAN, Architect

has not been conserved, but totally destroyed to permit of a rapid economic development. In other parts where nature was less generous, we have not sought to create that landscape wealth so essential to the health, happiness and prosperity of the inhabitants.

Our forefathers in New England, while facing problems involving their very existence, did not neglect the development of their home grounds or the improvement of their village streets, as the beautiful old colonial gardens and stately American elms

so frequently testify. The love for beautiful gardens and well-developed home grounds, which were such



TYPICAL ELEMENTARY CLASS ROOM, CLAWSON SCHOOL, OAKLAND, CAL.
JOHN J. DONOVAN, ARCHITECT

intimate parts of their lives in the mother country, continued to manifest itself, and not until the struggle for an independent national life began, did the spirit of progress in landscape gardening begin to wane. Later, as economic conditions began to improve and the people became more prosperous, there was a renewal of interest in better home surroundings and general civic development.

There were new and unimproved sections of this country, however, which in turn were destined to pass through the usual pioneer stage, but which were not so fortunate as New England, because colonial life with many of its cherished traditions had ceased to exist and the influence it had exerted over the land-



Forty-Fifth Street Entrance, Oakland Technical School, Oakland, Cal.

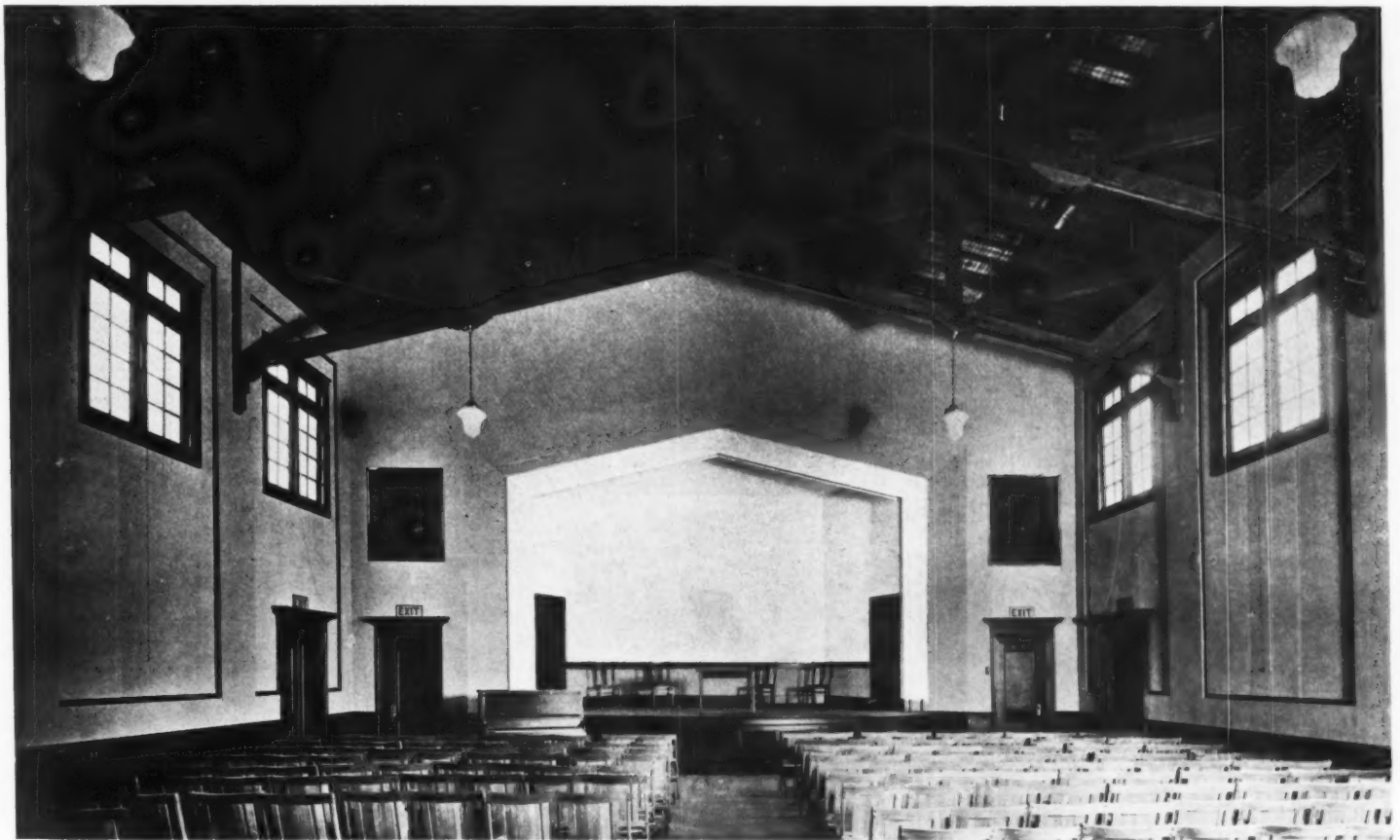
JOHN J. DONOVAN, Architect

H. HORNBOSTEL, Consulting Architect

scape improvement of that section was lost to others. The Spanish Padres in the early days of California established gardens around the missions, but with the advent of the white settler and the "days of '49," the influence of these gardens ceased to exist and they have never since been important factors in the landscape gardening of the State.

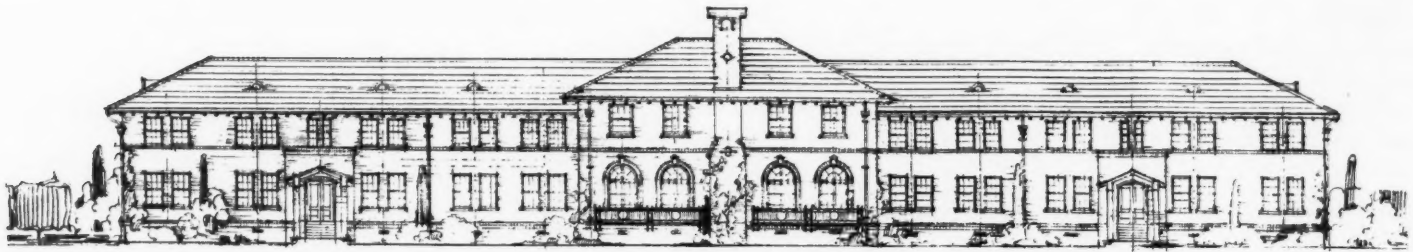
In the early days of California, "gold" was in many cases the sole object in life, and the wandering prospector had little thought or need for anything else. While the rancher—the truest home-builder of the nation—found himself in a new, un-

developed part of the country, possessed of nothing but his most personal belongings and with no thought,



ASSEMBLY HALL, MCKINLEY ELEMENTARY SCHOOL, SAN LEANDRO, CAL.

JOHN J. DONOVAN, ARCHITECT



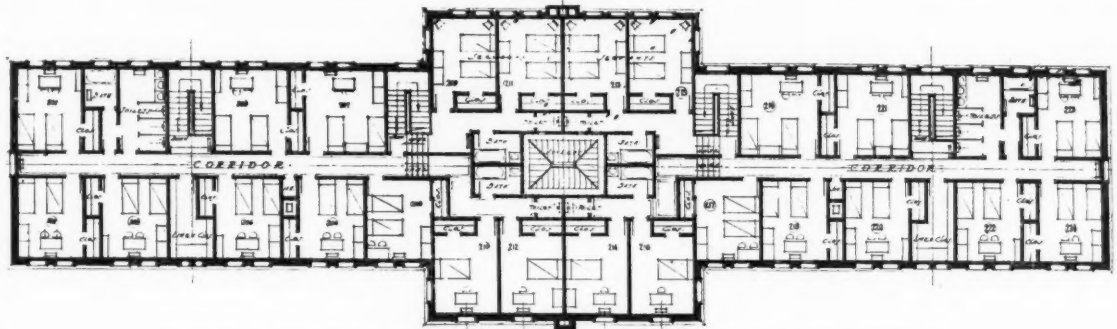
ELEVATION OF DORMITORY BUILDING, ELKO COUNTY HIGH SCHOOL, ELKO, NEV.

C. W. DICKEY AND JOHN J. DONOVAN, ARCHITECTS

time or money for the improvement of his home environment. The years of toil and pioneering, however, have brought improved economic conditions, the necessities of life have been provided for or are more easily attained, and we can now turn our attention to some of the comforts and pleasures of life, with the realization that many of the real pleasures and even luxuries do not always require vast sums of money to enjoy. What have in the past been considered expensive luxuries are now recognized as most valuable factors in the upbuilding of any individual or community. We are now noticing a growing and widespread interest in landscape gardening as it deals with the improvement of home grounds, school grounds, public parks and numerous other phases of civic or city life. Especially should communities be concerned with the proper improvement of the grounds surrounding those "school homes" in which the children of this State spend so large a portion of their young lives, and at an age when surroundings count so much in the upbuilding of their mental, moral and physical fiber. If the "school home" is to compete with the temptations around about the growing child, it must be fortified with every excellent condition obtainable.

Dr. Henry Suzzallo, president of the University of Washington, has truly said: "Tradition has decreed that the home of sovereignty shall be beautiful in its structure and setting. The palaces and estates of

kings registered this custom among Europeans. How shall America, with local self-government and popular sovereignty, express its reverence for law and liberty! More than any other place, the public school is the seat of American sovereignty! It is the one institution that is visible to every citizen. The American counterpart of the European palace and estate is the American public school and school grounds. Let us make the schools of America as beautiful as they can be made—fine, genial places, where children will be

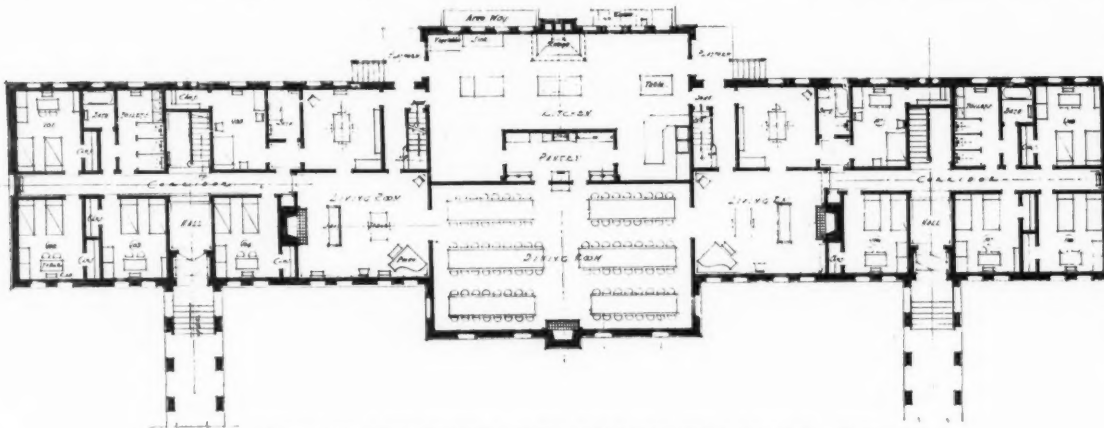


SECOND FLOOR PLAN, DORMITORIES, ELKO COUNTY HIGH SCHOOL, ELKO, NEV.

C. W. DICKEY AND JOHN J. DONOVAN, ARCHITECTS

glad to work and citizens pleased to congregate for every neighborly purpose. Let every community learn from architect and landscape designer what can be done to make the intellectual and civic home of young American citizens expressive of the finest ideals we have of living. The example and influence will not be lost. Growing youth will carry new ideals of order and tidiness and beauty into their working lives."

During the last quarter century, the spirit of progress in the improvement of the architecture and physical surroundings of our public schools in general has greatly manifested itself. School architecture has improved wonderfully in the larger towns and cities of the State, but can we say as much concerning the landscape development of school grounds? In the majority of cases, conditions are not materially better than they were twenty-five years ago. We often regret that school grounds are not larger and more beautiful, there-



MAIN FLOOR PLAN, DORMITORIES, ELKO COUNTY HIGH SCHOOL, ELKO, NEV.

C. W. DICKEY AND JOHN J. DONOVAN, ARCHITECTS



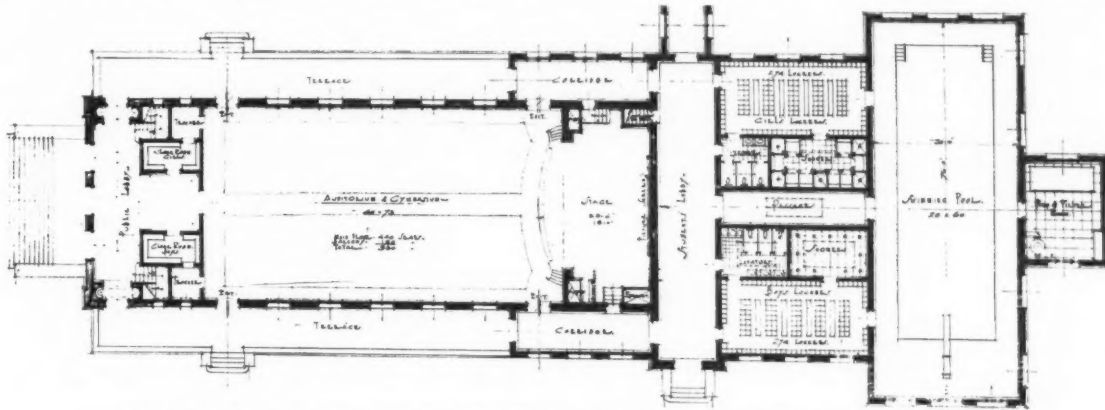
CLAREMONT ELEMENTARY SCHOOL, OAKLAND, CAL.
JOHN J. DONOVAN AND W. D. REED, ASSOCIATE ARCHITECTS

by conforming to improved architecture and providing the numerous elements of equipment in modern life.

One of the first problems that should receive more

pleasure on level grounds, while problems of irrigation in connection with ornamental plantings or school gardens are less difficult of solution. School grounds that are comparatively level are maintained at less

expense, present a much better appearance, and permit of a more economic and pleasing development. The time is past when land which has been condemned for other purposes, because of its poor location, poor soil or rough contour, should be purchased for school use. The low cost of such land is usually the determining factor, but it

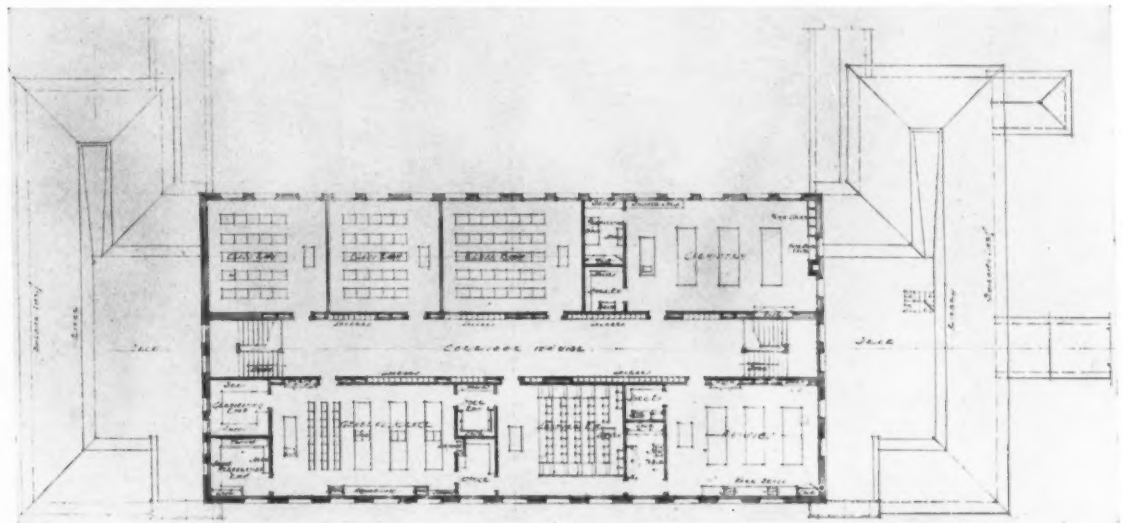


MAIN FLOOR PLAN, GYMNASIUM AUDITORIUM, ELKO COUNTY HIGH SCHOOL, ELKO, NEV.
C. W. DICKEY AND JOHN J. DONOVAN, ARCHITECTS

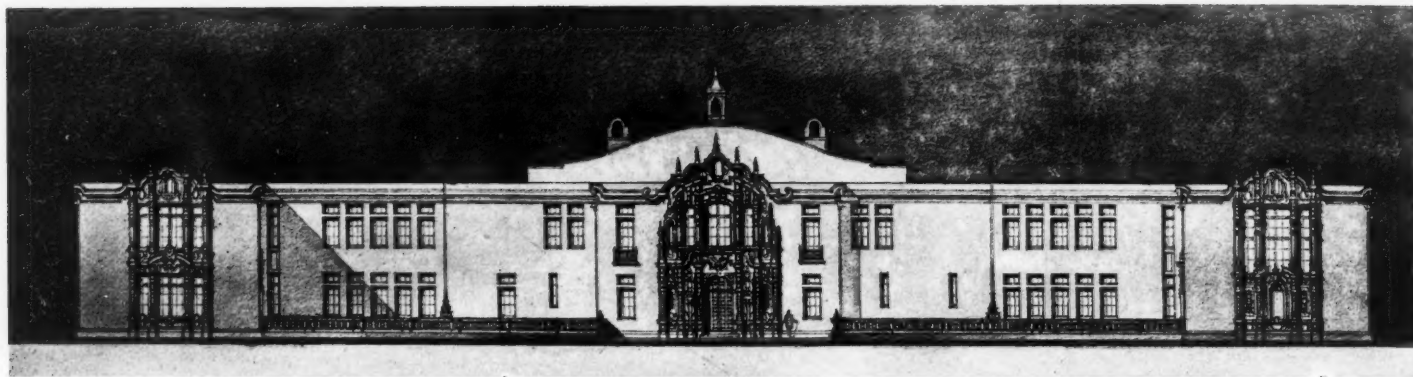
serious consideration by school trustees is that which concerns the size and location of school grounds. A site should be chosen—other conditions being satisfactory—that is as centrally located as possible in order that distances may be shortened to accommodate the largest number of children. The land should be reasonably level in its natural contour, as little or no grading will then be required to establish satisfactory play areas or care for other features that are more difficult to locate on rough, irregular surfaces. Baseball, tennis, basketball and other desirable games are played with greater satisfaction and

proves to be the most expensive in the end if an ideal development is wanted.

Besides being poorly located, many school grounds are entirely too small. Such areas not only fail to



SECOND FLOOR PLAN, CLASS ROOM BUILDING, ELKO COUNTY HIGH SCHOOL, ELKO, NEV.
C. W. DICKEY AND JOHN J. DONOVAN, ARCHITECTS

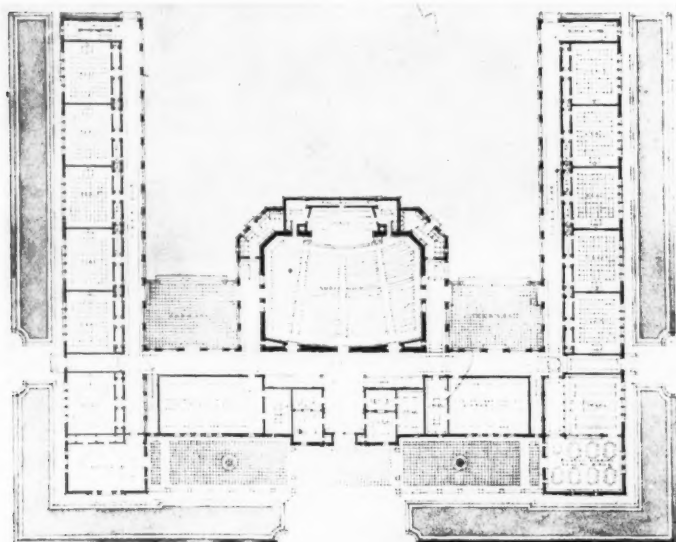


U STREET ELEVATION

provide for the modern requirements of the school proper, but for the civic needs of the community as well. The time has arrived when the school may properly become the civic center of civic life, and as such, it should be equipped with sufficient land to provide for all the needs of a progressive community.

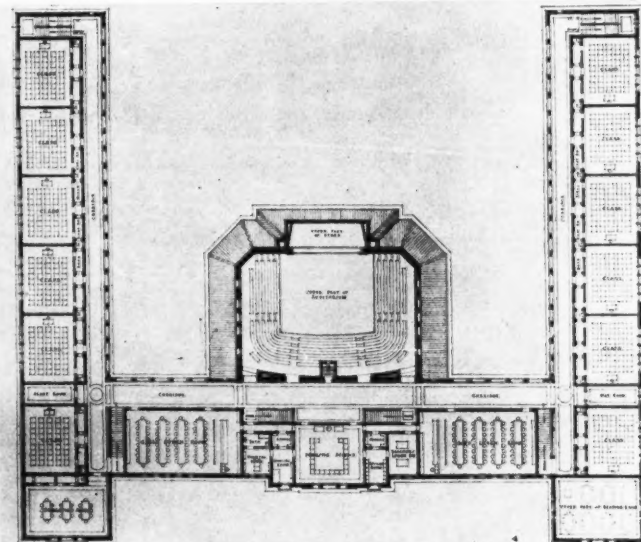
great need. For this reason, if no other, school grounds should be of sufficient size to provide for all the larger as well as the smaller games and athletic sports that boys and girls delight in.

School grounds should be large enough to permit of the building being located far enough back from



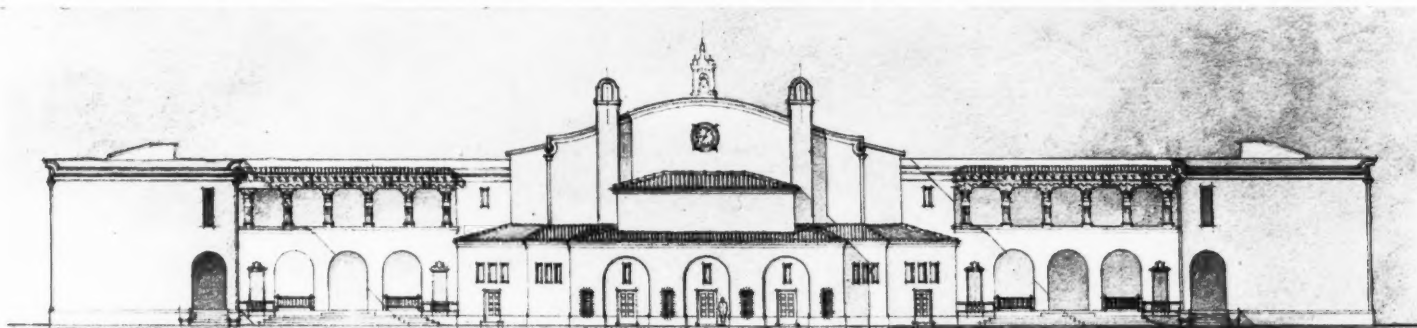
FIRST FLOOR PLAN

It is now generally acknowledged that children must play and that the playground is an absolute necessity, a little world, with its own problems and interests, in which are taught tact, management, leadership, quickness of thought and action, and many other sterling qualities of which the coming generations will have



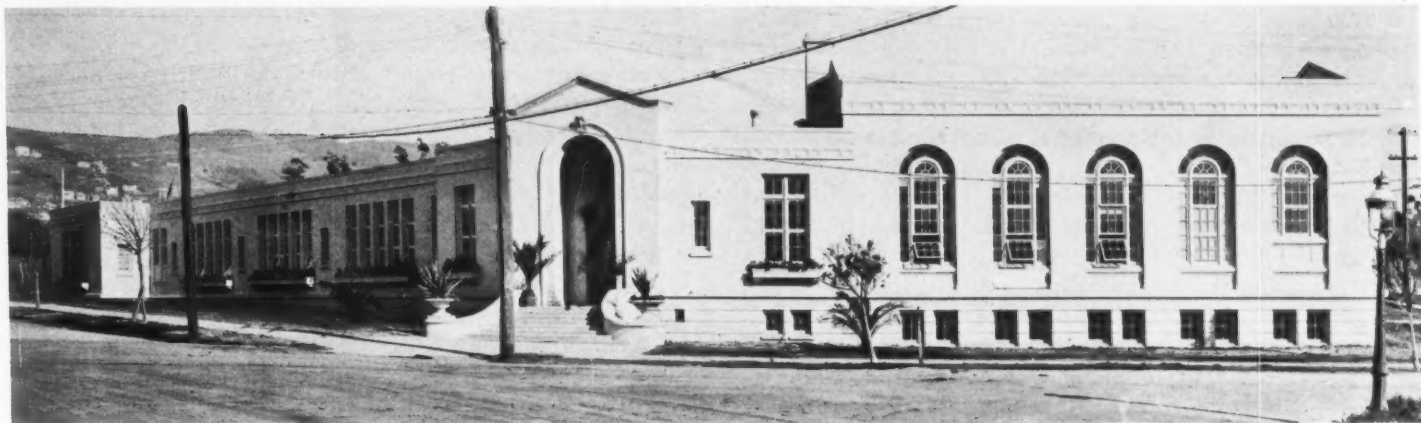
SECOND FLOOR PLAN

the road that the noise and dust from passing traffic will not become a nuisance. A pleasing landscape approach and setting for the building are a most valuable asset. They indicate the progressiveness of the district, and, above all, are attractive rather than repelling to the school children. Youth is quick to



REAR ELEVATION

SACRAMENTO ELEMENTARY SCHOOL COMPETITION, SACRAMENTO, CAL.
JOHN J. DONOVAN, ARCHITECT



ELEMENTARY SCHOOL, ALBANY, CAL.
JOHN J. DONOVAN, ARCHITECT

recognize and respond to the influence of "beauty" in the form of trees, shrubs, vines and other landscape material, and the larger the grounds, the greater the opportunity for making them attractive. The problem of maintenance, with respect to cultivation and irrigation, has often determined to a certain extent the size of school grounds and the amount of landscape improvement. This problem is easily solved, however, when a co-operative spirit is developed among trustees, parents, teachers and students.

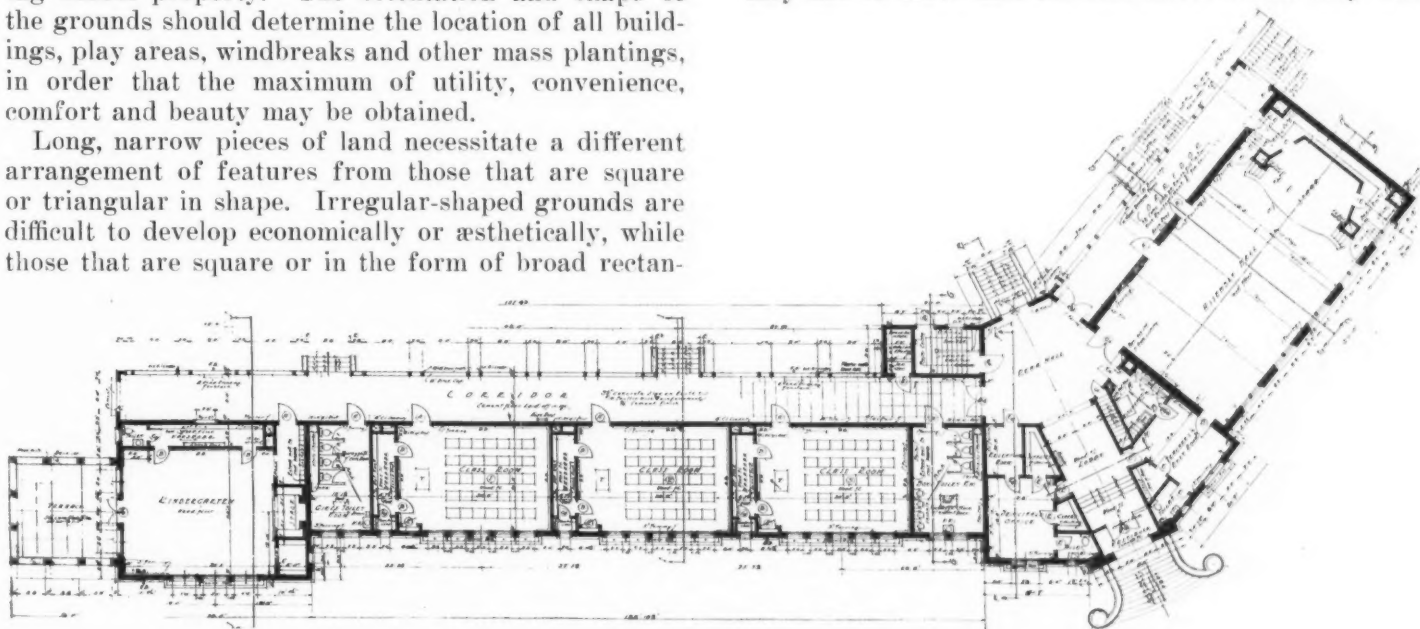
Little satisfactory development can take place on a half acre. One acre is small enough, and three to five acres are not considered too much for the school that has seventy-five or one hundred children, who must be provided with baseball, tennis, basketball and other play spans. Land values are constantly increasing, and it is safe to predict they will never be lower. It should be considered good business, therefore, to acquire more land than may be needed immediately, in order to provide for future needs.

The development of school grounds is influenced also by their exposure and shape; good light at all times, sun during the winter months and protection from severe prevailing winds are three very important factors to be considered in selecting and improving school property. The orientation and shape of the grounds should determine the location of all buildings, play areas, windbreaks and other mass plantings, in order that the maximum of utility, convenience, comfort and beauty may be obtained.

Long, narrow pieces of land necessitate a different arrangement of features from those that are square or triangular in shape. Irregular-shaped grounds are difficult to develop economically or aesthetically, while those that are square or in the form of broad rectan-

gles offer much better opportunities for a systematic arrangement of all features. Desirable distant views, water supply and sanitation are other important factors that should be considered in connection with orientation when selecting the school site, because they may influence materially the whole design. A site having a warm south or southeast exposure, and a contour which permits of good surface drainage during the rainy season, is generally considered ideal.

Walks and drives are not in themselves very ornamental and good ones are most expensive to construct. They are more or less necessary, in order that the principal features of the grounds may be readily accessible. They may add or detract from the whole design, however, as they are properly or improperly located, or as they approach the extreme in number and width. On small grounds, or when the building is close to the road, one entrance with a straight single or double walk usually looks better and is most serviceable. When the grounds are large and the building is located farther back from the main road, more than one entrance may be required and the road or walk laid out in easy, graceful curves. The number, width and arrangement of walks and drives will depend, of course, upon the location of the features they are to serve and the amount of traffic they will



FLOOR PLAN ELEMENTARY SCHOOL, ALBANY, CAL.
JOHN J. DONOVAN, ARCHITECT

be required to care for. A service drive should be provided and so located as to facilitate the delivery of fuel and other supplies, and to make horse sheds, barns or garden areas easily accessible. Walks and drives are usually too numerous, too wide, and poorly located, with the result that they are very conspicuous and costly features. The principal walk from the road to the building may be from six to ten feet in width. In some cases, however, the architectural lines of the main entrance of the building may require the walk to be wider for the sake of appearance. Minor walks may be from three to five feet, according to the number of children that might be expected to use them at one time. Service drives may be as narrow as eight feet. Ten feet is much better, however, and twelve

healthy games boys and girls delight in. The boys' play area should contain a baseball diamond, basketball and handball courts, and some kind of a running track, no matter how small, or if nothing more than a straightway. Provisions should also be made for high and broad jumping and, possibly, volleyball. Nowadays girls are indulging in all of the above-mentioned games, but more especially basketball, volleyball and tennis. Therefore, a girls' play area which will provide for these games must be located. The boys' playground is usually the largest, due in part to the greater area required for baseball. It should be separated, nevertheless, from the girls' area by some apparently natural line of demarcation, such as a walk, drive, line of trees, hedge, fence or per-



ONE OF THE GROUND FLOOR PLAY ROOMS, CLAWSON ELEMENTARY SCHOOL, OAKLAND, CAL.

JOHN J. DONOVAN, ARCHITECT

or fifteen may be necessary under some conditions. It is impossible to establish any definite widths for walks and drives that would meet the requirements of every school. Good judgment has to be exercised in every case and the principal factors of utility and beauty thoroughly considered.

The main walk, and perhaps some others near the building, should be permanently constructed of concrete or brick, in order that they may furnish a clean, solid surface under all weather conditions and be less expensive to maintain. Gravel, crushed rock or dirt walks are never satisfactory and are expensive to maintain in even a reasonable condition. They may be used for the less important walks, however, and for drives and playground surfaces.

As previously stated, playgrounds are considered an absolute necessity. Children must play, and school grounds should be designed to provide for all the

gola. Tennis is a very popular game with all children and it is usually advisable to locate one or more courts where either boys or girls may make free use of them. Where there are a number of very small children in the school, a third play area must be located which will contain swings, seesaws, sand-boxes, slides, etc. The location of the various play areas, mentioned above, must be made with due respect to an economic division of the land, protection from severe winds, orientation, supervision, safety, and last, but not least, beauty. In the majority of cases a good dirt surface for play areas will give as much satisfaction as more expensive types, especially if they can be crowned slightly to care for surface drainage during the winter months. Sometimes, however, gravel or fine crushed rock and oil will be found very desirable.

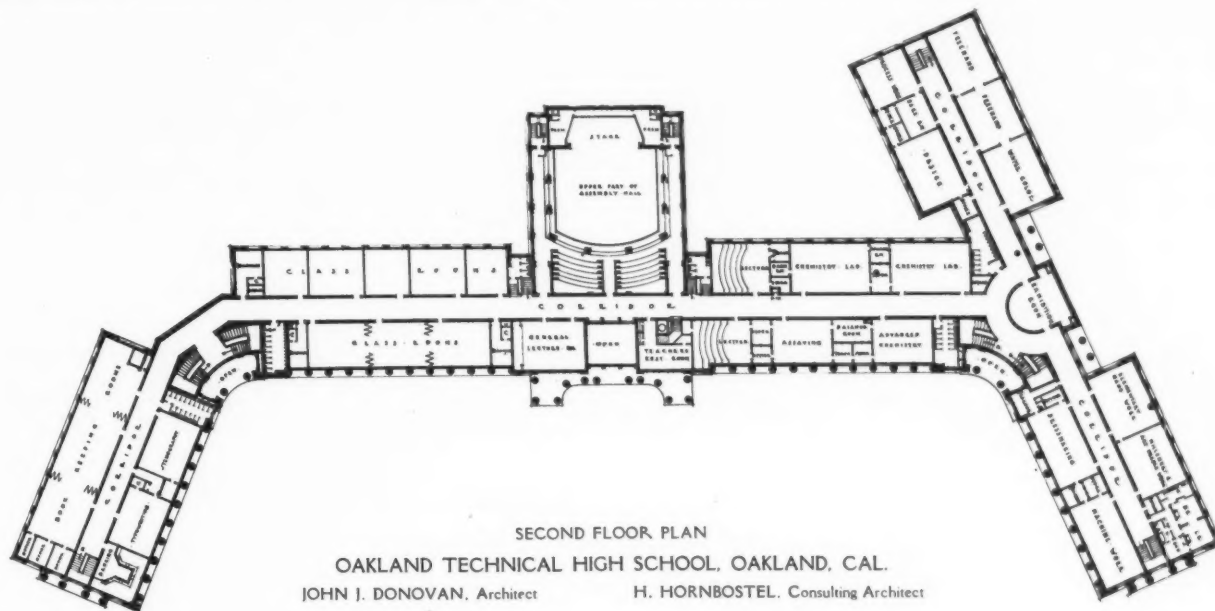
Gardening in different forms is now being taught

in many schools and this work should be provided for where the soil is good and where the area will not be unsightly when not in use. Often a tool house, lath house and frames will be needed, and they should be located in harmony with other surrounding features. The area should be inclosed by a hedge or good wire fence, over which roses and ornamental vines may be grown. This latter recommendation applies to the school property as a whole. A good substantial woven-wire fence, well painted and overgrown with attractive vines, not only adds materially to the appearance of the whole scheme, but protects all interior features as well.

Trees, shrubs, vines, annual and herbaceous plants may now be considered as the necessary ornamental material with which the skeleton of the whole plan is clothed and beautified. Many people have a tendency to think of plants as the whole of landscape, and landscape gardening as that practice which considers only

the screening of low objects. They should never be scattered promiscuously as individual specimens over a large area, and should never be planted in regularly defined beds in the center of lawn areas or where they will interfere in any way with general playground features. They also serve as "facings" for tree groups and as "filler material" in windbreaks or larger screen plantings. Vines are useful in covering fences, lunch houses, pergolas and trellises. Even the appearance of the school building may often be improved by some kind of vine growth. Annual and herbaceous plants may be used in shrubbery borders and in many other situations where they will give that trace of color so pleasing to the eye.

It is impossible to enumerate all the uses which different kinds of plants may be put to, the desirable effects they can produce, or the service they can render. They not only possess an æsthetic value, but an economic value as well, which is hard to state in



their propagation, planting and care. Landscape gardening in the light of modern thought and practice is an art which seeks to arrange the surface of the land and all elements on the surface for human use, habitation and convenience, and enjoyment, in such a way as to create a beautiful picture or composition, possessing all the economic and æsthetic qualities of an organized whole.

Plants of various kinds, however, are most important elements in the majority of landscapes and more of them should be used in the embellishment of school grounds. Nothing adds more to the beauty or utility of such areas than a good collection of judiciously arranged and well-grown trees and shrubs. Trees may be planted in such a way as not only to frame the school building, but to preserve desirable distant views. They may also serve to check severe winds, screen objectionable views and furnish shade, if needed. Ornamental shrubs in variety may be planted around the base of the school building, at intersections of walks or drives, in out-of-the-way corners, and for

the terms of money. Here in California, with such a wide range of climatic and soil conditions, and a most extensive flora, both native and exotic, there is no reason why our school grounds should not be the best developed and the most beautiful of any in America. To accomplish all this, however, each problem has to be studied in a systematic and business-like way, and definite plans prepared in advance.

Plans for the economic and æsthetic development of school grounds are just as essential as architectural plans which govern the design of a building. Without plans, the maximum of utility, convenience, comfort and beauty cannot be obtained in the development of school grounds. Such plans should be prepared even though it may take several years to carry them out in all details. One year the walks and drives may be put in, the next year some of the planting may be done, and so on as finances permit, until at last the completed scheme will be one to be proud of, because everything will have been provided for in the most useful and beautiful way.

THE ARCHITECT

VOL. XIV

SAN FRANCISCO, OCTOBER, 1917

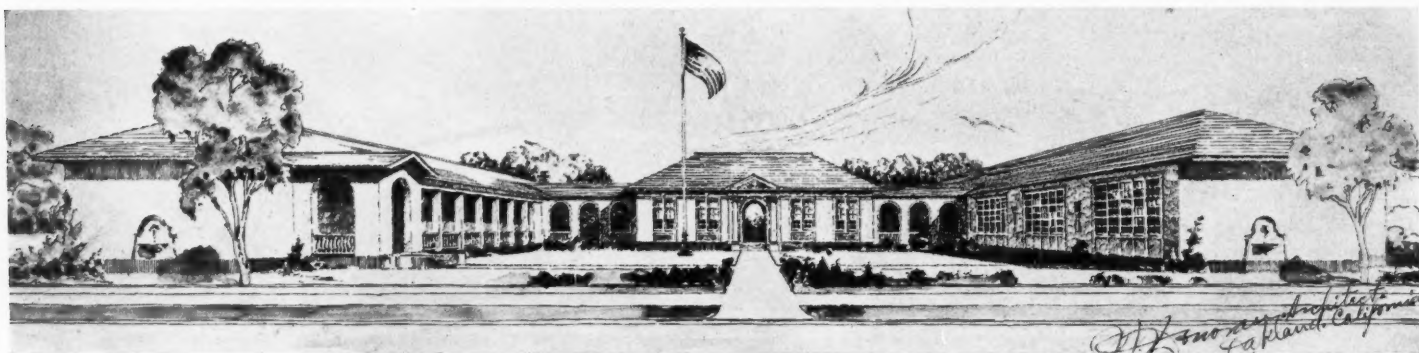
NO. 4

Editorial.

NOTHING could illustrate the recent progress of school architecture more clearly than this series of "School Numbers." A few years ago it would have been impossible to collect enough material of merit for even a single issue; even now the examples that are worthy of production are few as compared to the amount of work being

is conclusive proof of incapacity. If, however, his work has been done intelligently and well, then he has proven himself capable of learning the lessons that experience teaches.

Mr. John J. Donovan, to whose work this issue is largely devoted, is an architect of this latter type. When appointed in charge of the school work of the City of Oakland, he had



FRONT ELEVATION

PROPOSED ELEMENTARY SCHOOL FOR SAN LOUIS OBISPO, CAL.

JOHN J. DONOVAN, ARCHITECT

done. The former lack of progress was largely the result of conditions peculiar to school architecture, and those primarily responsible are the school officials themselves.

A man of taste usually builds a tasteful house, while a man of stupid ideas and poor taste usually manages to inject that stupidity and lack of taste into the work done for him, even if he accidentally acquires the services of a good architect. However, he is almost certain to select an architect for other reasons than his architectural ability. To him the prattle of the specialist especially appeals, as it deals with things which are within his understanding. This is all as true of the school official as of any other client.

School work has been largely limited to certain self-styled specialists, adepts in the art of handling school officials, but too often of mediocre ability as architects.

Talk of specialism in architecture is usually "bunk" used to bolster up mediocrity. After all, school architecture is architecture, and its problems primarily architectural. Technical details, however essential, are immeasurably less important than beauty of design or logical and well-proportioned planning.

We do not wish to decry experience in school work, but do wish to point out that the mere fact of having done work is not to one's credit. While one failure need not necessarily condemn a man, the fact that he has failed again and again

had no experience as a school architect. He chose as associates in a portion of this first work a number of able architects.

Mr. Donovan was particularly fortunate in that he was able to avail himself of the knowledge of a man who had spent a great many years in directing school work, Mr. McClymonds, Superintendent of Schools of the City of Oakland. With his assistance he quickly mastered the technical requirements necessary to make up the complete and successful school.

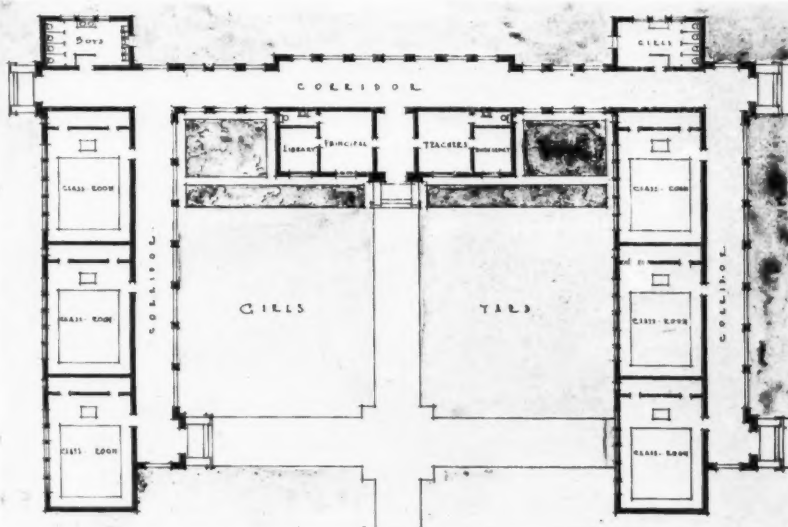
These requirements are based upon the organization of the school system itself, and form the elements which the architect of ability must use in producing his plan and design.

Since that time Mr. Donovan has built a large number of successful school buildings. While the results have varied, the sincerity of purpose and endeavor to reach the best architectural result are always apparent.

While we do not consider that he has yet reached the point which he hopes and intends to reach in his work, he is evolving a system of school design that is always bringing

him closer to his goal. We wish to emphasize the fact that, while Mr. Donovan has made a close and successful study of the technical details of his problem, he has not allowed these details to come so close to his field of vision as to cut off from view that still more important essential—architecture.

JOHN BAKWELL, JR.



FLOOR PLAN



In response to your demands for a **PACIFIC** one-piece built-in bath tub, we announce the Sierra.

It has no feet—rests directly on the floor and is built in the wall.

It is 5½ inches lower than ordinary bath tubs, therefore it is easier to get in and out of.

The water cannot splash, but enters noiselessly.

The Sierra is built of one piece of Porcelain Enameled Iron Ware, glazed inside and out. It has a beautiful shining white surface.

Its massive lines are striking and simple.

PACIFIC

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For sale by all jobbers

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Richmond & San Pablo
California

Official News of Pacific Coast Chapters, A. I. A.

The Architect is the Official Organ of the San Francisco Chapter, Southern California Chapter and Washington State Chapter, A. I. A.

The regular minutes of meetings of all Pacific Coast Chapters of the American Institute of Architects are published on this page each month.

San Francisco Chapter, 1881—President, Edgar A. Mathews, 251 Post Street, San Francisco, Cal. Secretary, Morris M. Bruce, Flood Building, San Francisco, Cal. Chairman of Committee on Public Information, William B. Faville, Balboa Building, San Francisco. Chairman of Committee on Competition, William Mooser, Nevada Bank Building, San Francisco. Date of Meetings, third Thursday of every month; Annual, October.

Southern California Chapter, 1894—President, J. E. Allison, 1405 Hibernian Building, Los Angeles, Cal. Secretary, A. R. Walker, 1402 Hibernian Building, Los Angeles, Cal. Chairman of Committee on Information, W. C. Pennell, Wright & Callender Building, Los Angeles. Date of Meetings, second Tuesday; except July and August at Los Angeles.

Oregon Chapter, 1911—President, Joseph Jacobberger, Board of Trade Building, Portland, Ore. Secretary, W. C. Knighton, 307-309 Tilford Building, Portland, Ore. Chairman of Committee on Public Information, Joseph Jacobberger. Date of Meetings, third Thursday of every month at Portland; Annual, October.

Washington State Chapter, 1894—President, Charles H. Bebb, Seattle.



First Vice-President, Daniel R. Huntington, Seattle. Second Vice-President, George Gove, Tacoma. Third Vice-President, L. L. Rand, Spokane. Secretary, J. C. Coté, Seattle. Treasurer, Ellsworth P. Storey, Seattle. Counsels: J. H. Schack, J. Stephen and Charles H. Alden. Date of Meetings, first Wednesday, except July, August and September, at Seattle, except one in spring at Tacoma. Annual, November.

The American Institute of Architects—The Octagon, Washington, D. C. Officers for 1917: President, John Lawrence Mauran, St. Louis, Mo.; First Vice-President, C. Grant La Farge, New York City, N. Y.; Second Vice-President, W. R. B. Willcox, 400 Boston Block, Seattle, Wash.; Secretary, Burt L. Fenner, New York City, N. Y.; Treasurer, D. Everett Waid, 1 Madison Ave., New York City, N. Y.

Board of Directors for One Year—Charles A. Coolidge, 122 Ames Building, Boston, Mass.; Charles A. Favrot, 505 Perrin Building, New Orleans, La.; Elmer C. Jensen, 1401 New York Life Building, Chicago, Ill. *For Two Years*—Edwin H. Brown, 716 Fourth Avenue, Minneapolis, Minn.; Ben J. Lubsch, Reliance Building, Kansas City, Mo.; Horace Wells Sellers, 1301 Stephen Girard Building, Philadelphia, Pa. *For Three Years*—William B. Faville, Balboa Building, San Francisco, Cal.; Burt L. Fenner, New York City; Thomas R. Kimball, Omaha, Neb.

Minutes of San Francisco Chapter

The regular monthly meeting of the San Francisco Chapter of the American Institute of Architects was held at Tait's Cafe, 168 O'Farrell Street, on Thursday, September 20, 1917. The meeting was called to order by Mr. Edgar A. Mathews, the President, at 12:30 p. m.

Members present were: John Bakewell, Jr., Morris M. Bruce, Chesley K. Bonestell, Jr., Arthur Brown, A. Reinhold Denke, Charles W. Dickey, W. B. Faville, J. S. Fairweather, August G. Headman, B. S. Hirschfeld, B. J. Joseph, John O. Lofquist, William Mooser, Edgar A. Mathews, Walter H. Parker, Matthew O'Brien, Fred H. Meyer, Smith O'Brien, Sylvain Schnaittacher, Albert Schroeffer, T. Paterson Ross, George Rushforth, G. Alexander Wright.

STANDING COMMITTEES

Board of Directors: No report.

San Francisco Sub-Committee on Competitions: No report.

City Planning: A report was received from Mr. Charles H. Cheney relative to the National City Planning Conference held in Kansas City, May 7, 8, 9, 1917.

Institute Relations: No report.

Commercial Bodies: No report.

Education: No report.

COMMUNICATIONS

From Key-Hold Lath Company regarding amendment to the building laws affecting plasterboard; from E. C. Kemper relative to the resignation of Mr. L. T. Lenzen from membership in the Institute; from E. G. Garden relative to his resignation from the Chapter; from Otto Kleeman relative to the payment of his dues; from State Commission of Immigration and Housing of California thanking the Chapter for its assistance and co-operation in the drafting of the bills and their final enactment into law; from Building Industries, enclosing membership cards to meetings; from the *American Architect* relative to the names of Chapter members who have given their services to the Government in the war; from Willis Polk relative to the State Building Competition.

NEW BUSINESS

Mr. Mooser spoke in reference to Mr. Charles Peter Weeks' letter referring to Mr. Mooser's report on the State Building Competition, which was a personal and not a committee report. There being no further comments, the letter was ordered filed.

It was moved by Mr. Rushforth, and duly seconded, that Mr. Polk's letter asking that the Chapter join in a request to the Governor to reopen the State Building Competition matter be laid on the table. Carried.

It was moved by Mr. Mooser, and seconded, that Mr. Cheney's report of the National City Planning Conference in Kansas City be spread upon the minutes and copies sent to all Chapter members.

Mr. Mathews reported receiving a letter from Frank Miles Day in regard to documents in preparation on professional practice and business administration, which will prove very useful.

It was moved by Mr. Mooser, and seconded, that those members of the Chapter who have entered the Federal service for the war shall

be exempt from the payment of Chapter dues during the term of their service.

It was moved and seconded and carried that hereafter the meetings be held in the evening.

It was moved by Mr. Schnaittacher, and seconded, that the Chapter resign its membership in the Civic League of Improvement Clubs on account of the entrance by the latter into the political field.

NOMINATION OF OFFICERS

The following nominations for officers for the ensuing year were made:

Mr. Mooser nominated the present officers for re-election: Mr. Edgar A. Mathews, President; Mr. Sylvain Schnaittacher, Vice-President; Mr. Morris M. Bruce, Secretary.

Mr. Bakewell nominated Mr. Headman for Trustee.

Mr. Meyer nominated Mr. Bakewell for President.

It was moved by Mr. Mooser, and seconded, that the number of Trustees be increased and the nomination and election be conducted in conformity with the new forms of constitution and by-laws being prepared by the Institute.

On motion of Mr. Faville, nominations were declared closed.

ADJOURNMENT

There being no further business before the Chapter, the meeting adjourned at 2:35 p. m.

Subject to approval, Sept. 20, 1917.

MORRIS M. BRUCE, Secretary.

Minutes of Southern California Chapter

The one hundred and ninth meeting of the Southern California Chapter of the American Institute of Architects was held at Jahnke's Cafe, on Tuesday, September 11, 1917.

The meeting was called to order by Mr. J. E. Allison, President, at 7:15 p. m.

The following members were present: J. E. Allison, J. C. Austin, J. J. Backus, F. P. Davis, P. A. Eisen, A. M. Edelman, W. E. Erkes, Lyman Farwell, R. C. Farrell, J. C. Hillman, R. G. Hubby, F. D. Hudson, J. P. Krempel, A. C. Martin, S. B. Marston, S. T. Norton, R. H. Orr, A. W. Rea, A. F. Rosenheim, W. J. Saunders, J. T. Vawter, A. R. Walker, August Wackerbarth, H. F. Withey, W. H. Willson.

As the guest of the Chapter was present Mr. W. E. Prine, of the *Southwest Contractor*.

Minutes of the one hundred and seventh and one hundred and eighth meetings were read and approved.

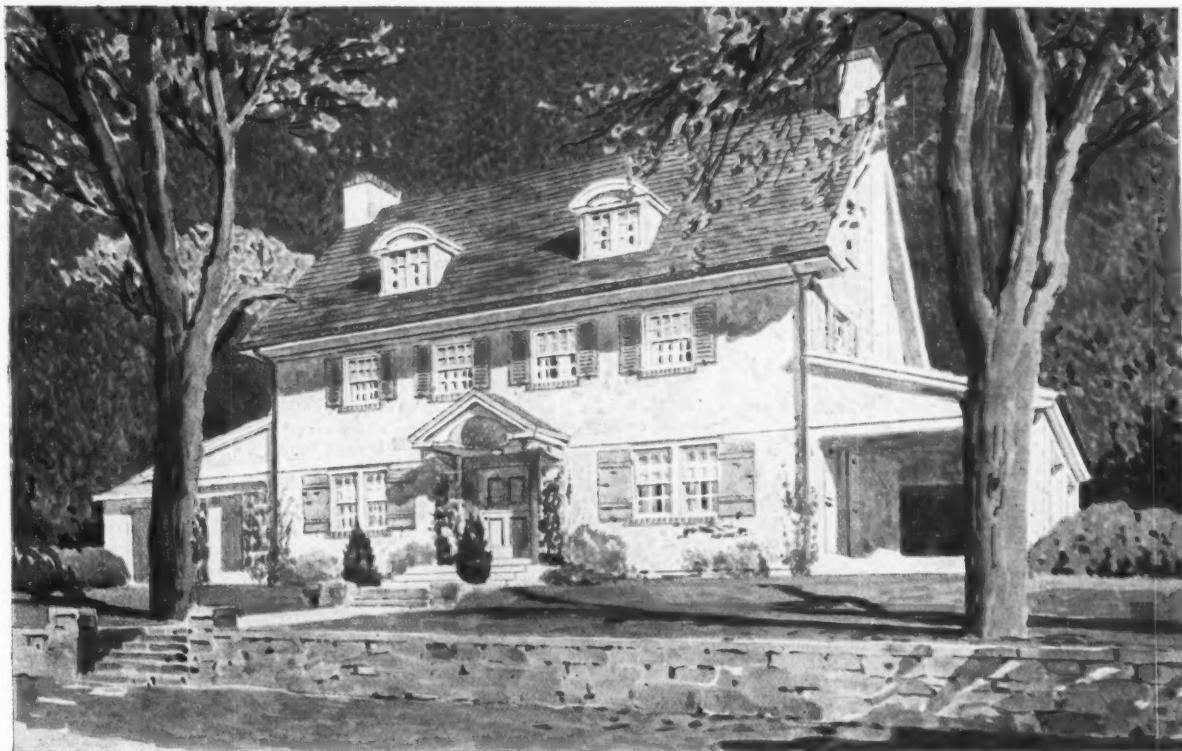
The Treasurer reported a balance of \$45.48 in the regular Chapter fund and \$17.77 in the special fund.

The Secretary reported collections made since the last meeting in amount \$544, including \$250 received from San Francisco.

Collections in the special assessment fund, \$25.00.

Disbursements from the regular fund, \$492.85, and from the special fund, \$19.77.

For the Board of Directors the Secretary reported three meetings held, the principal matter of business at all three meetings being caring temporarily for expenses incurred by the Legislative Committee.



Stucco of new color and texture

The new aggregate-toned stucco gives the architect a fresh medium to work with—or at least a medium with fresh possibilities. This stucco obtains its effects by adding screenings of richly colored granite or marble, or warm-toned sands or gravels to Atlas-White Cement in the finish coat. It is therefore necessarily capable of highly individual treatment with a great variation of color, tone, and texture. The color is permanent and shown in its fullest value by the white non-staining cement.

Our monograph for architects, "Color Tones in Stucco," describes our experiments in aggregate toning; reproduces in full scale and color sample panels of the results, each with its formula; lists some sources of available aggregates; and contains a convenient guide to color stucco specifications. A copy will be mailed to you on request. The Atlas Portland Cement Company, New York or Chicago.

For the Chapter's Committee on Membership, it was reported that Mr. Carleton Monroe Winslow, from the New York Chapter, had been transferred to the Southern California Chapter, and that Mr. R. Germain Hubby had been transferred from the Cleveland Chapter.

For the A. I. A. Sub-Committee on Education, Mr. R. C. Farrell made the suggestion that the architects busy themselves with suggesting proper new books along architectural and allied lines for purchase by the Public Library. This recommendation was made upon the suggestion of Mr. Everett R. Perry, City Librarian.

For the Chapter's Committee on City Planning, Mr. Withey reported that further work would be necessary by those interested in the movement in view of the election of practically an entire new City Council.

For the Chapter's Committee on Revision of Constitution and By-Laws, Mr. John P. Krampel announced two meetings held and that a new draft of the Constitution and By-Laws would probably be ready for the coming meeting.

Communications were read as follows:

From William Stanley Parker, advising that the charges made against Mr. Elmer Grey were under investigation by the Institute's Board of Directors.

From William Stanley Parker, notifying of the transfer of membership of Mr. Carleton Monroe Winslow, formerly of the New York Chapter.

From William Stanley Parker, notifying of the transfer of R. Germain Hubby, formerly of the Cleveland Chapter.

From the Southern California Electrical Contractors and Dealers, offering co-operation with Chapter members in the framing of electrical specifications and by resolution requesting Chapter architects to confine the acceptance of bids to members of their Association.

It was moved by Mr. A. C. Martin, duly seconded and carried, that the Secretary communicate with the Southern California Electrical

Contractors and Dealers, stating that the Chapter would be unable to bind its members as an organization to such an action and recommending that said Association get in touch with the individual Chapter members.

The President announced the meeting of the Joint Technical Societies on Thursday, September 13th, at which Mr. George Edwin Bergstrom would speak.

Mr. R. Germain Hubby, a new member, following his introduction to the members of the Chapter, was called upon for a short talk.

Under the head of new business, Mr. A. F. Rosenheim brought up for discussion the matter of various forms of alleged advertising indulged in by various Chapter members.

Mr. A. C. Martin offered a defense for those members who believed that many of the methods referred to by Mr. Rosenheim were forms of legitimate publicity.

After general discussion, a vote was taken on the question, particularly with reference to the publication of more or less technical articles referring to works performed, and the Chapter passed a resolution to the effect that such methods were legitimate forms of publicity and not advertising.

After discussion relative to the practice of several newspapers in asking subscriptions for annual numbers, a resolution was offered that the Chapter should recommend to its members that in the future no further donations or subscriptions or gifts to newspapers for annual numbers be tendered by members of the Chapter.

This resolution was further amended to cover instructions to the Secretary that a copy of such resolution be sent to all members.

A vote of thanks was proposed, and adopted, to Mr. A. F. Rosenheim for his further activities in the Chapter's welfare.

The meeting adjourned at 9:40 p. m.

ALBERT R. WALKER, Secretary.

Report of the National City Planning Conference

KANSAS CITY, MAY 7-8-9, 1917

By CHARLES HENRY CHENEY, Delegate

I have the honor to submit herewith my report on the proceedings of the Ninth National Conference on City Planning held in Kansas City on May 7, 8 and 9, 1917, which I attended as your delegate. About one hundred and forty delegates were present at the Conference, and most of the important cities in the United States were represented. This convention was declared by its president, Frederick L. Olmsted, to have been the most important and useful one ever held by the Conference. The local newspapers gave much publicity to the work of the convention, and it is interesting to quote from an editorial in the *Kansas City Times* (May 10th):

"A few years ago nobody knew what city planning meant. We all understood that a well-managed business is planned for the future. But we had a notion that a city could grow in a haphazard way and there was no occasion to attempt to direct its growth along rational lines. A city plan was supposed to be merely a civic center about a city hall or courthouse.

"Now we have learned that we were mistaken. We have discovered that we can plan for traffic ways, for industrial additions, for correct housing. Experience has taught us that too wide streets in the residence districts are wasteful. We have found that convenience and beauty and healthfulness are important city assets, and now we are discovering that there are trained men who can help us get these things—not visionaries, but men who have based their work on experience."

LARGE CITIES NOW HAVE PERMANENT COMMISSIONS

It was reported that practically all the large cities of the country, with the exception of San Francisco—in fact, something over two hundred cities in all—have appointed permanent city planning commissions to advise and recommend to the Mayor, City Council or Board of Supervisors, as the case may be, well-thought-out plans and ordinances for zoning the city and for initiating and guiding city development in a business-like way, which politically elected boards find it difficult to do. By making it definitely somebody's business officially to plan and advise, these cities as a result are doing most constructive work, often effecting definite economies on a large scale. They seem to have overcome the continual bickering in each little local district, which fights the improvements of other sections of the city, a matter from which San Francisco has long suffered, as our Mayor and Board of Supervisors can testify.

City planning involves consideration of zoning or districting so as to limit the height and bulk and use of all buildings, the study of railway terminals, traffic ways, street widenings, parks and playgrounds and housing. Mr. Olmsted says that city planning is to show the divergent interests in the city's growth how to pull together for the best use of the natural opportunities of the community.

ZONING OR DISTRICTING OF CITIES

The great importance of zoning or districting of cities was emphasized at practically every session of the Conference. It was evident that the experts present without question regarded it as the first fundamental step. California's progress came in for a great deal of favorable comment, particularly as the decisions of the United States Supreme Court upholding the Los Angeles zone ordinance seemed to be the basis for districting in New York and most of the other cities of the country.

At the special session on zoning, papers on different phases of the subject were read and discussed by Lawson Purdy, of New York City;

Charles H. Cheney, of San Francisco; Edward M. Bassett, of New York City; Frank D. Stringham, of Berkeley, and a number of others. Mr. Purdy during his address said:

"Every city contains horrible examples of homes ruined by the intrusion of garages, stores or factories. Every large city in this country has buildings so high that they steal their neighbors' light and air and monopolize the streets. Every one of these buildings is an extra hazardous investment. When its light and air has gone, its tenants go and the rent goes and the mortgagee can have the deed.

"Some of the dearest things of life may not be reasoned in money, but all the advantages of city life and city ownership may be measured by money. Surely the general welfare demands that we shall zone our cities to protect our homes, protect life and protect values."

Mr. Purdy stated that one building which was assessed at \$3,900,000, and which was mortgaged for \$3,500,000, actually sold for \$3,000,000 after its light had been taken away by surrounding high buildings. One twenty-two story building, which rented its floor space at \$1.00 per square foot per year so long as it had light and air borrowed from its neighbors, now rents its space for 45 cents per square foot per year, its original tenants having vacated on account of the want of light and air resulting from the construction of new buildings on three sides. The reduction of values below Twenty-fourth Street in New York has been enormous on account of the construction of too high buildings. When the Equitable Insurance Company contemplated the erection of its new building on Broadway, the neighboring buildings got together and offered the company two and one-fourth million dollars if the company would not build above the ninth story; that is to say, they would pay that amount for the light and air above that height. The company asked two and one-half million dollars for that privilege and the project fell through. The company then built its present forty-story building. Economic waste results from such haphazard construction, and there is no doubt but that New York should have long ago adopted an ordinance limiting the height of the buildings to be constructed in any part of the city. In July of last year, New York passed an ordinance covering the entire city in which it has limited the height and bulk of buildings and divided the city into three classifications of uses.

The Berkeley districting plan is much more complete than that of New York in segregating the different uses of buildings most carefully to protect residence districts. As probably more than ninety per cent of the buildings in Berkeley, as in Los Angeles and most other Western cities, are used for single family residences only, the problem out here is to protect that type of building. In New York City, where a very large proportion of the buildings are high, congested apartment buildings, the problem is different. The Berkeley plan makes the formation of districts optional, which evidently would leave open a large area of the city undistricted for many years to come unless the city takes steps to classify the remainder of the city without waiting for the petition of the local residents in each neighborhood. It seemed to be the general opinion of this Conference that it was advisable to district the whole city at once and that Berkeley had best do this immediately to protect its standing in court. The Berkeley and Los Angeles ordinances do not of course establish heights of building districts or area districts as in New York, although the new California State zoning law now directs all California cities to do so.

RAILWAY TERMINALS

George A. Damon, of Pasadena, presented an interesting paper on the subject of "Interurban Passenger Terminals." He showed how important it was that Los Angeles secure better terminals for its suburban trains; that the latter could only successfully compete with the jitney bus when the street cars were not hampered by other traffic in going through the densely populated districts of the city and could operate trains with sufficient speed. Los Angeles should have all of its suburban terminals connected underground so that passengers could pass through the city without their being transferred over the crowded surface thoroughfares.

The chief engineer of the Public Service Railway Corporation of New Jersey showed by lantern slides how Newark, New Jersey, had partially solved its transportation problem by constructing a modern central street car terminal and arranging for the taking on and discharge of passengers upon different levels.

Lawson Purdy told how the electrification of the New York Central Railroad removed the smoke nuisance and added millions of dollars to the value of the property upon the street which lies over the underground portion of the road. The trains are twenty-six feet underground in an open cut, and no vibrations can be felt in the buildings.

Kansas City has an excellent union railroad station where trains of all roads pass through the city with the greatest economy of operation. Station and adjuncts cost approximately \$40,000,000, the cost being borne by twelve railroads.

Denver has a modern end-on union station, but trains have to back out, which of course is not the best kind of an arrangement.

A. Pearson Hoover, of New York, read a paper on the subject of "Industrial Terminal and Its Relation to the City Plan." This paper discussed the economic advantage of an industrial terminal, such as the famous Bush Terminal of New York.

PARKS AND PLAYGROUNDS

Mr. Jay Downer, engineer of the Bronx Parkway Commission, in an illustrated lecture demonstrated how the Bronx River for the entire distance from Bronx Park to Croton Dam had been reclaimed from an unsanitary, unsightly watercourse and converted into a beautiful stream bordered by parks and playgrounds, with a driveway along its course, all of which is destined to become the recreation ground of millions of people.

Chicago has found in recent years that many of the smaller children in the city could not use the larger parks, for the reason that they were generally located too far apart and too far from the homes of these children. The city, therefore, recently created a Special Park Commission to study this question. As a partial result of the labors of this commission, Chicago purchased, during the year 1915, forty-eight small parks scattered throughout the city.

During the last twenty years, Kansas City (population approximately 250,000) has spent \$16,000,000 upon its park and boulevard system, paid for on the district assessment plan. This system is a source of health and much pleasurable enjoyment to that city, and one of which they are justly proud. One of the park commissioners of Kansas City suggested that cities hereafter in their park development provide landing spaces for aeroplanes. City planners generally are recommending that plat playgrounds be required in close vicinity to school buildings. In certain parts of New York, traffic is excluded from some of the streets during a portion of the day, in order that children may have a place to play.

TRAFFIC WAYS

The increased traffic resulting from the introduction of motor cars presents a most serious problem. In some instances the only remedy is to cut through new streets or to widen existing streets. Mr. Nelson P. Lewis pointed out that there are four ways of meeting this necessity:

1. The setting back of the curb.
2. The actual widening of a street by purchase of land.
3. Requiring new buildings to be set back from the property line, the city acquiring an easement until such time as it may wish to acquire the fee.
4. Putting the sidewalks under arcades, the city acquiring an easement for that purpose through the ground floor of existing buildings which are remodeled to include the arcade.

The second method, which is the most efficient, is, of course, the most expensive. When the right to excess condemnation is once clearly established, the expense to cities of widening streets would be reduced. We shall have an opportunity to vote on a constitutional amendment granting cities this power in California at our next general election.

In the last ten years, Chicago widened Michigan Avenue at an expense of about \$8,000,000 and widened Twelfth Street at an expense of \$4,000,000.

New York has recently widened, or is now widening, two streets at a total expense of about \$5,000,000 each. Mr. Lewis gave one illustration where an owner received in damages for the taking of land for the widening of the street a sum equal to what he had paid for the property, and the owner then sold the remaining portion of his lot for a sum equal to the damages paid, and this same owner had protested against the amount of damages which he had been allowed.

Mr. Hill, city engineer of Kansas City, urged the separation of the light, fast-moving vehicular traffic from the slower and heavier vehicles. Traffic ways must form a complete system, and if they are not in the direct flow of business upon easy grades, they fail of their functions. Traffic is sure to follow the line of least resistance. It will go out of its way to avoid a bad road or a grade. There is no doubt but that a great deal has been accomplished by merely making traffic rules and regulations. A tremendous amount of traffic can be taken care of when well handled. This is well illustrated

by the intensive use made of the Great White Road to Verdun during the time of the German assault in February. All refugees and all of the munition supplies and ambulances to take care of the force of 800,000 men had to pass over this road. Over 30,000 passed one point of this road in one day, counting the vehicles going in both directions. If any one vehicle became disabled, it had to be immediately thrown out of line.

CITY PLANNING

Most of our cities have not been scientifically planned and there is a common misconception that city planning and the city beautiful are synonymous terms. I quote Mr. McFarland:

"There are people who imagine that city planning consists of covering lamp posts with wriggling dolphins and ornamenting buildings with bunches of grapes and flowers tied with impossible stone ribbons. Some cities have been built with this idea. Most of them look like a man in evening dress to his waist and with overalls the rest of the way down. A city plan has to be either right or wrong. Pompeii, Babylon and the most ancient of cities had their city plans.

"There is one city planning crown of which we can always boast. It is the national capital. It was designed for a national capital by the man for whom it was named. At a time when the colonists were hanging onto a strip of the Atlantic Coast by their eyebrows, George Washington planned a city for future years. All cities should be planned in this way for a purpose and for the future."

Mr. Charles E. Merriam, former alderman of Chicago, well expressed the purpose of city planning:

"City planning is city conservation. It is the same work on a small scale as national conservation is on a larger. We may measure our gains in square feet of land. We may appraise them in dollars and cents. We may chronicle them by the clock in terms of transportation time. We may gauge them by the reduction in the grim reaper's toll of death and the sweeping ravages of disease. But we cannot measure by rule, scale, compass or computer the precious human values, the warmth and brightness of more abundant life, the happiness and joy of larger living, those personal values which transcend all others, and whose protection and promotion are the supreme end of government."

I have the honor to report my election to the Board of Governors of the American City Planning Institute, newly organized at this Conference to increase the efficiency and service of the country's trained city planners for the benefit of the cities which employ them.

Respectfully submitted,

CHAS. H. CHENEY, *Delegate.*

School Buildings of St. Louis, Mo.

(Continued from page 253)

brick lined rooms; shower baths and dressing booths are provided to accommodate relays of twenty to thirty pupils, who take their baths under the supervision of an attendant.

The mechanical equipment of the building includes a steam plenum system of heating and ventilation, with temperature and humidity control, the air being washed and purified before entering the rooms. The heating is entirely indirect, and the ventilation is based upon nine air changes per hour in class rooms and four changes per hour in corridors. The building is wired and fitted complete with electric fixtures, the light distribution at the desk level being figured upon the basis of three foot candles, except for special rooms, where a greater quantity of light is desired.

A synchronizing clock and bell system, a house telephone system between the principal rooms, and a mechanical cleaning system complete the equipment.

The buildings are of fireproof construction throughout, except in the cases of buildings with pitched roofs, in which event the roof is of mill construction over the fireproof ceiling of the upper story.

The finish of the buildings is generally of oak, the floors are maple, and the walls and ceilings are painted in lead and oil upon hard wall plaster.

The cost of these buildings complete, ready for their equipment of school furniture, and including the improvement of the school grounds, paving, fencing, etc., averages eighteen cents per cubic foot.

ARCHITECTS' REFERENCE INDEX

Containing List of Manufacturers, Their Representatives and Serviceable Literature

ASBESTOS BUILDING LUMBER

Keasbey & Mattison Co., Ambler, Pa.
J. A. Drummond, 245 Mission Street, San Francisco, Cal.
 Illustrated and descriptive pamphlet, 7¼x10¾, 8 pp. Pamphlet, 4x8½, 8 pp. Price list, 3½x6¼. Literature of various sizes, samples, etc. "Service Sheets," working drawings, details of application, size 16½x21½.

ASBESTOS CORRUGATED SHEATHING

Keasbey & Mattison Co., Ambler, Pa.
J. A. Drummond, 245 Mission Street, San Francisco, Cal.
 Descriptive catalogue, 5¼x8¼, 24 pp. Catalogue of details and specifications for application of roofing and siding, size 8½x11, 40 pp. Lists of buildings covered. Price lists, 3½x6¼, 6 pp. Lists of buildings and literature, various sizes, samples, etc. "Service Sheets," working drawings, details of application, size 16½x21½.

ASBESTOS SHINGLES

Keasbey & Mattison Co., Ambler, Pa.
J. A. Drummond, 245 Mission Street, San Francisco, Cal.
 Illustrated catalogue, various types of roof covering, 5¼x8¼. Various pamphlets, 3½x6. Current price lists, 3½x6¼, 6 pp. Lists of buildings and literature, various sizes, samples, etc. "Service Sheets," working drawings. Detail of application, size 16½x21½.

BRICK, ENAMELED

N. Clark & Sons, 116 Natoma Street, San Francisco, Cal.
 Catalogue and various literature.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles, Cal.
United Materials Co., 5 Crossley Bldg., San Francisco, Cal.
 Catalogue on "Enameled Brick for Facing," illustrating and listing names of prominent buildings finished with Enameled Brick. 5x7½, 48 pp.

BRICK, FIRE AND REFRACTORIES

N. Clark & Sons, 116 Natoma Street, San Francisco, Cal.
Henry Cowell Lime & Cement Co., 2 Market Street, San Francisco, Cal.
 Imported and domestic brands.
 Catalogues and various literature.
Denny-Renton Clay & Coal Co., Hoge Building, Seattle, Wash.
 Catalogues and various literature.
Gladding, McBean & Company, Crocker Bldg., San Francisco, Cal.
Los Angeles Office, Trust and Savings Bldg.
 Price list No. 45 on Clay Products. 5x7½ in. 70 pages, containing illustrations.

Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles, Cal.
United Materials Co., 5 Crossley Bldg., San Francisco, Cal.
 Descriptive catalogue, 5x7, 54 pp.

BRICK, PRESSED

N. Clark & Sons, 116 Natoma Street, San Francisco, Cal.
 Catalogues and various literature.
Denny-Renton Clay & Coal Co., Hoge Building, Seattle, Wash.
 Catalogues and various literature.
Gladding, McBean & Company, Crocker Bldg., San Francisco, Cal.
Los Angeles Office, Trust and Savings Bldg.
 Price list No. 45 on Clay Products. 5x7½ in. 70 pages, containing illustrations.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles, Cal.
United Materials Co., 5 Crossley Bldg., San Francisco, Cal.
 Moulded and Ornamental Pressed Brick. General catalogue. 5x7, 54 pp.

BRICK, PAVING

Denny-Renton Clay & Coal Co., Hoge Building, Seattle, Wash.
 Catalogues and various literature.

CEMENT, PORTLAND

Atlas Portland Cement Company, The, 30 Broad St., New York.
 (Western Representatives, see advertisement.)
 Building a Bungalow. Addressed to owners. Booklet 8x10½ 14 pp, with 4 insert plates.
 Choosing the Garage. Describing actual construction. Booklet. 8x10½ in. 26 pp.
 "Color Tones in Stucco," a booklet of 20 pages and cover, in full colors. Size 8½x11 in.
 Commercial Garages. With construction notes and architectural treatment. Booklet 8x10½ in. 12 pp.
 Early Stucco Houses. With modern stucco specifications. Booklet. 8½x11 in. 24 pp.
 Guide to Good Stucco. Addressed to contractors. Booklet. 8½x11. 20 pp.
 Handbook and Treatise. Concrete in factory construction. 6½x8¾ in. 250 pp.
 Information for Home Builders. Addressed to owners. Booklet. 8½x10½. With 8 insert plates.
Henry Cowell Lime & Cement Co., 2 Market Street, San Francisco.
Cowell Portland Cement Co., Cowell, Cal.
 Mt. Diablo Brand especially adapted for cementing oil wells. Literature and pamphlet supplies on request as furnished by the Portland Cement Association.
Santa Cruz Portland Cement Co., Crocker Bldg., San Francisco.
Standard Portland Cement Co., Crocker Bldg., San Francisco, Cal.
 Bulletin 12 pp. Size 6x9; also furnish bulletins and specifications for various classes of work requiring Portland Cement.

ELECTRICAL EQUIPMENT

Keasbey & Mattison Co., Ambler, Pa.
J. A. Drummond, 245 Mission Street, San Francisco, Cal.
 Descriptive Pamphlet, 3½x6. 12 pp. Descriptive, 4x8½. 8 pp. "Service Sheets" working drawings. Detail of application. 16½x21½.

ELEVATORS

Otis Elevator Co., Eleventh Avenue and 26th Street, New York.
Otis Elevator Co., 2300 Stockton Street, San Francisco, Cal. Offices in all principal Coast cities.
 Otis Electric Traction Elevators. Bulletin. 6x9 in. 28 pp.

ESCALATORS

Otis Elevator Co., Eleventh Avenue and 26th Street, New York.
Otis Elevator Co., 2300 Stockton Street, San Francisco, Cal. Offices in all principal Coast cities.
 Otis Escalators. Bulletin. 6x9 in. 36 pp.

GARDEN POTTERY AND FURNITURE

Sarsi Studios, 361 Golden Gate Avenue, San Francisco, Cal.
 Pamphlet, Pompeian Stone. Size 6x9 in. 4 pp.

GLASS

W. P. Fuller & Co., Principal Coast cities.
 Plate, Sheet and Mirror Lists.
 Glass Samples.
Keasbey & Mattison Co., Ambler, Pa.
J. A. Drummond, 245 Mission Street, San Francisco, Cal. Pacific Coast representative CORRUGATED WIRE GLASS for skylight construction (without housings), used in connection with Asbestos Corrugated Sheathing. Catalogue of details. 8½x11. 40 pp.

IRONING BOARDS

National Mill & Lumber Co., 318 Market Street, San Francisco, Cal.
 Pamphlet. 3½x6¾ in. 4 pp.

LANDSCAPE ENGINEERS

MacRorie-McLaren Co., 141 Powell Street, San Francisco, Cal.
 Descriptive catalogue. 5x8¾. 52 pp.

LATH, METAL

North Western Expanded Metal Co., 934 Old Colony Building, Chicago, Ill.
 Designing Data. Scientific treatise on reinforced concrete. 4x6½ in. 88 pp.
Kno-Burn Expanded Metal Lath. Treatise on metal lath, with details and specifications. 6x9 in. 52 pp.
 "Chanelath" Handbook. Treatise on ribbed metal lath details and specifications of its application to reinforced concrete construction and for plastering work. 6x9 in. 48 pp.
 Stucco Specifications. Reprint of the standard specifications adopted by the American Concrete Institute.

LIME

Henry Cowell Lime and Cement Co., 2 Market Street, San Francisco, Cal.
 Santa Cruz and Cowell Santa Cruz Brands.

MANTEL BRICK

N. Clark & Sons, 116 Natoma Street, San Francisco, Cal.
 Catalogues and various literature.
Denny-Renton Clay & Coal Co., Hoge Building, Seattle, Wash.
 Catalogues and various literature.
Gladding, McBean & Company, Crocker Bldg., San Francisco, Cal.
Los Angeles Office, Trust and Savings Bldg.
 Price list No. 45 on Clay Products. 5x7½ in. 70 pages, containing illustrations.
Los Angeles Pressed Brick Co., Frost Building, Los Angeles, Cal.
United Materials Co., 5 Crossley Bldg., San Francisco, Cal.
 Illustrative of designs for mantel. 5x6 in. 54 pp.

MANTELS, STONE

Sarsi Studios, 361 Golden Gate Avenue, San Francisco, Cal.
 Pamphlet on Art Carved Stone. 6x9 in. 4 pp.

MILL WORK

National Mill & Lumber Co., 318 Market Street, San Francisco, Cal.
 Catalogue of Moulding Columns, Doors and General Mill Work. 7x10. 94 pp.

PAINTS, ENAMELS AND WOOD FINISHES

Berry Bros., Wight and Leibe Streets, Detroit, Mich.
Berry Bros., 250 First Street, San Francisco, Cal.
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Boston Varnish Co., Everett Station, Boston.
San Francisco Office, A. L. Greene, Mgr., 311 California Street.
 Kyanize Enamel. Complete specifications. Booklet. 5x7 in. 20 pp.
 Kyanize White Enamel. Directions. Circular. 3½x6 in. 8 pp.
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 Silkenwhite Enamel, Tinted Panels, and descriptive matter, Wall Finishes and Kalsomine. 20-page booklet.
 Decorator's Sample Books.
The Mural Co., New Brighton, New York.
A. L. Greene, Manager San Francisco Office, 311 California Street, San Francisco, Cal.
 Catalogues, literature and color cards.
R. N. Nason & Co., 151 Potrero Avenue, San Francisco, Cal.
 Catalogues, literature and color cards.
Wadsworth, Howland & Co., Inc., 139 Federal Street, Boston.
San Francisco Office, James Hamby & Sons, 268 Market Street, San Francisco, Cal.
Los Angeles Office, 447-449 E. Third Street, Los Angeles, Cal.
 Bay State Brick and Cement Coating. Catalogue. 4x9. 24 pp.
 Color plates.
 Bay State Finishes, Stains, and Varnishes. Pamphlets. Color cards, etc.

PIPE, WOOD

Pacific Tank & Pipe Co., 318 Market Street, San Francisco, Cal.
 Catalogue of wood pipe and tanks for all purposes. 4x8¾ in. 40 pp.

PLUMBING EQUIPMENT

Pacific Sanitary Mfg. Co., 67 New Montgomery Street, San Francisco, Cal.
Northern Manager, H. L. Frank, 80 Front Street, Portland, Ore.
Southern Manager, C. B. Noyes, 201 Union Oil Building, Los Angeles, Cal.
 General catalogue "C." 6½x9 in. 176 pp. Indexed.
 School Sanitation Book. 6x9. 32 pp.
Standard Sanitary Manufacturing Co.
 San Francisco Warehouse, Display Rooms and Offices, Bluxome St.
 Los Angeles Warehouse, Display Rooms, Offices, Mesquit St.
 Seattle, 5300 Wallingford Ave.
 General Catalogue "P." 9x12, 674 pp. General Catalogue "PF." 9x12, 329 pp. Factory Sanitation Catalogue. 9x12, 36 pp. Built-in Bath. 9x12, 37 pp. Pottery Catalogue Sanitary Earthenware. 9x12, 38 pp. Shower Booklet. 3½x6, 19 pp. Efficiency Kitchen Book—Modern Kitchen Equipment. 5x7, 15 pp. Plumbing Fixtures for the Home. 5x7¼, 63 pp.

PORTABLE HOUSES

National Mill & Lumber Co., 318 Market Street, San Francisco, Cal.
 Catalogue Treatise on Portable House. Suitable for any location. Size 4x9. 12 pp.

POTTERY, GARDEN

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Gladding, McBean & Company, Crocker Bldg., San Francisco, Cal.
Los Angeles Office, Trust and Savings Bldg.
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North Western Expanded Metal Co., 934 Old Colony Building, Chicago, Ill.
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N. Clark & Sons, 116 Natoma Street, San Francisco, Cal.
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Denny-Renton Clay & Coal Co., Hoge Building, Seattle, Wash.
Catalogues and various literature.
Gladding, McBean & Company, Crocker Bldg., San Francisco, Cal.
Los Angeles Office, Trust and Savings Bldg.
Price list No. 45 on Clay Products. 5x7½ in. 70 pages, containing illustrations.
Los Angeles Pressed Brick Co., Frost Building, Los Angeles, Cal.
United Materials Co., 5 Crossley Bldg., San Francisco, Cal.
Hand book and price list of sewer pipe, flue lining, chimney pipe and interlocking brick. 4x7. 22 pp.

SLIDING DOORS

National Mill & Lumber Co., 318 Market Street, San Francisco, Cal.
"Pitcher's Disappearing Door." Folder. 3½x6 in. 8 pp.

TANKS, WOOD

Pacific Tank & Pipe Co., 318 Market Street, San Francisco, Cal.
Catalogue illustrative and descriptive of house and building tanks, towers and wood pipe for various purposes. 4x9. 40 pp.

TERRA COTTA, ARCHITECTURAL

N. Clark & Sons, 116 Natoma Street, San Francisco, Cal.
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N. Clark & Sons, 116 Natoma Street, San Francisco, Cal.
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Gladding, McBean & Company, Crocker Bldg., San Francisco, Cal.
Los Angeles Office, Trust and Savings Bldg.
Price list No. 45 on Clay Products. 5x7½ in. 70 pages, containing illustrations.
Los Angeles Pressed Brick Co., Frost Building, Los Angeles, Cal.
United Materials Co., 5 Crossley Bldg., San Francisco, Cal.
Hollow Tile Fireproofing. General catalogue. 5x7 in. 54 pp.

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N. Clark & Sons, 116 Natoma Street, San Francisco, Cal.
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Hoffman Heater Co., 397 Sutter Street, San Francisco, Cal.
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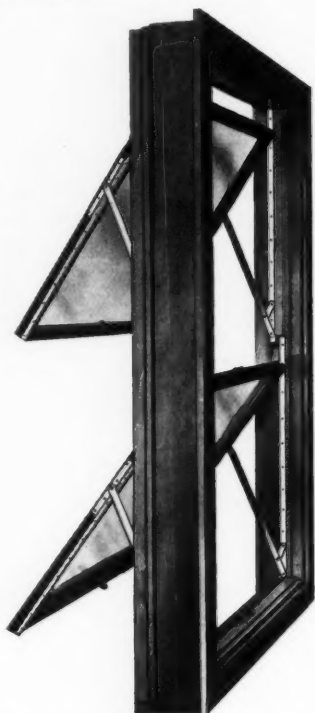
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Tilting Simplex windows have solved the problem! They supply an abundance of fresh air and furnish perfect ventilation. This is accomplished by reason of the sashes tilting outwardly, forcing the air inwardly and upwardly over the scholars in a draughtless circulation to every part and portion of class room, while automatically the used, exhausted air full of carbon dioxide gas, owing to its greater weight, falls and is



expelled through lower opening of sash, particularly so when windows are extended down to within ten or twelve inches of the floor. For this purpose the windows should be made with three sashes instead of two. Separate shades should be attached to each sash, which, when drawn up over inner side, forms protection from the sun; when sashes are openly tilted, sufficient light will enter and you still have the full capacity of window for fresh air, creating through the use of these windows open-air class rooms, which can be in winter time closed and made both weather and wind proof, thus performing the two-fold function of being both an open-air window with perfect ventilation and also a weather-proof, wind-tight window when closed.

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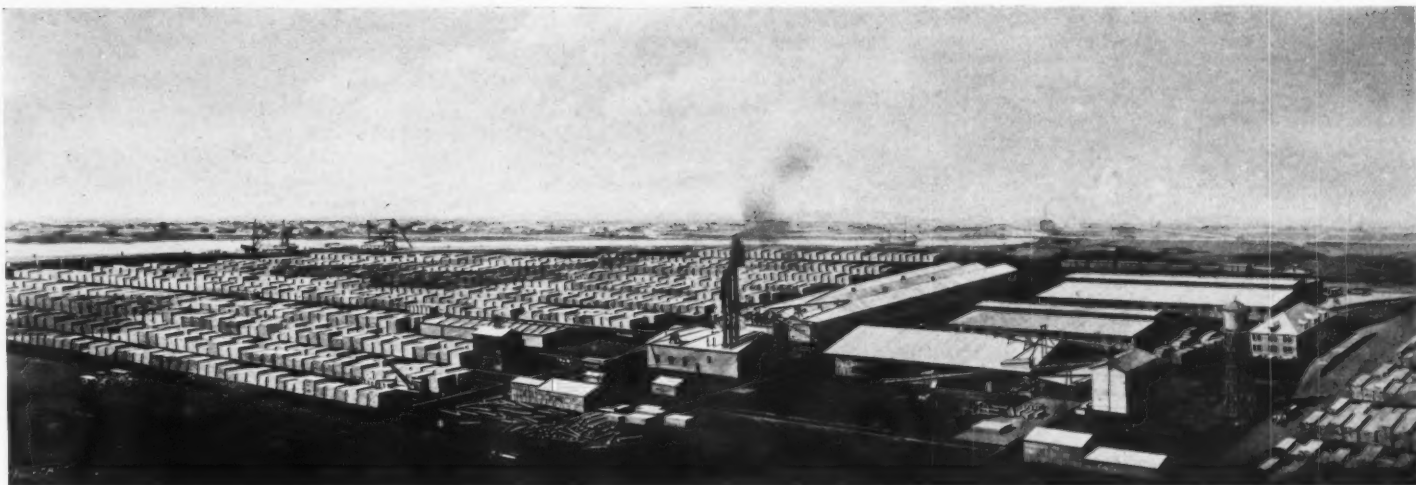
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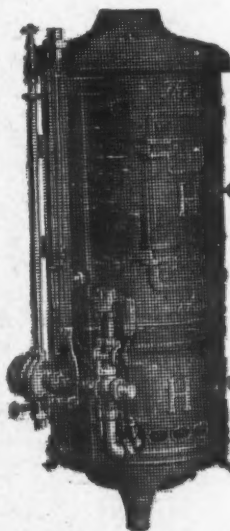
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